August 2022 Weather Digest

August 2022 Weather Summary

August certainly didn't fail to live up to its wet reputation, as much of southern New Mexico and west Texas received ample rainfall. The monsoon pattern was able to keep a fairly consistent flow of moisture to the area throughout the month, but was especially bolstered mid month when a tropical upper low moved across northern Mexico, bringing in large areas of heavy rain and flooding. Flooding in the desert southwest often involves swollen arroyos and urban areas with poor drainage, but this August even some of the main rivers partook in the flooding. The Gila River and its tributaries above Gila Hot Springs saw minor flooding on the 21 and 22. Even much less common, the Mimbres River saw minor flooding from about Sherman, New Mexico northward.

Temperatures began the month on a hot note, with about the first 10 or so days of the month above normal, as storms were a bit more spotty. By the middle of the month, if not sooner, better coverage of storms and clouds brought temperatures back down to below normal. Thus the month for most sites ended up with below normal high temperatures. Because of frequent cloud cover, overnight low temperatures at most places remained above normal.

August 2022 Weather Summary, cont'd

Due to the wet month, drought conditions continued to ease up significantly as the great majority of southern New Mexico and west Texas saw monthly rainfall of 125 to 300 percent of normal. Thus drought conditions ended in far west Texas, being replaced by just abnormally dry status. Southern New Mexico, which at the beginning of the monsoon season was in extreme to exceptional drought status; those conditions have improved to moderate to severe.

Looking ahead to September, we begin the transition from monsoon to autumn westerly flow aloft. With the monsoon usually sticking around until around the 20th, September is still about the third wettest month of the year for most places. The month continues the slow cooling toward eventual winter. High temperatures at El Paso begin the month at 92 degrees and end the month at 85 degrees. The autumnal equinox occurs on September 22 this year. Daylight continues to shrink, from 12 hours, 48 minutes on the first to 11 hours, 52 mintues on the last day of the month. The September Full Moon, also known as the Harvest Moon occurs on the 10th, while the New Moon occurs on the 25th.


August 2 Thunderstorm Deming


August 3 El Paso Storm


August 2 El Paso Storm


August 9 Thunderstorm
West El Paso


August 9 Sinkhole El Paso


August 10 Sinkhole El Paso

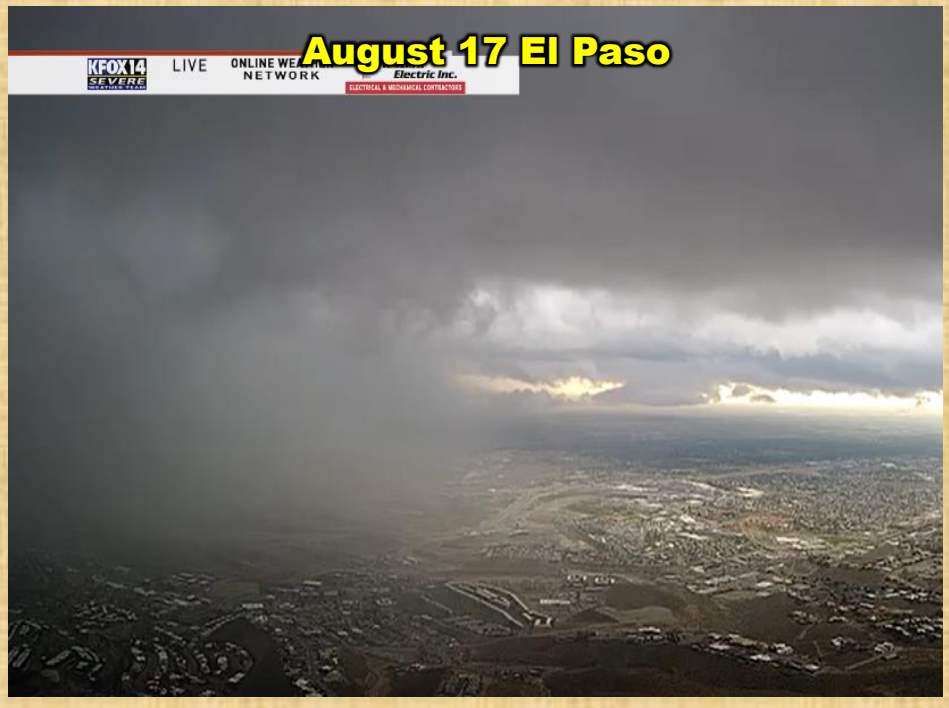

August 19 Storm Damage El Paso


August 6 El Paso Rainbow


August 9 Storm near Anthony


August 9 Storm west of Santa Teresa


August 17 Storm El Paso


August 17 El Paso
KFOX14
LIVE
NETWORK
Electric Inc.


August 17 West El Paso


August 17 Transmountain Road


August 21 Storm near Lordsburg Playa
NE


August 21 Storm El Paso


August 21 Flooding Gila Hot Springs


August 21 Flooding Gila Hot Springs


August 22 El Paso Thunderstorm


August 21 Flooding Gila Hot Springs


August 23 Flood Damage Hwy 180
west of Silver City


August 23 Funnel Cloud Las Cruces


August 23 Flood debris Las Cruces


August 23 Flood debris Las Cruces


Aug 27 Opening night UTEP Football


Aug 28 Rainbow near Las Cruces
SPEED
LIMIT
55


Aug 27 Lightning near El Paso


August Sunset

ENSO Alert System Status: La Niña Advisory in Affect

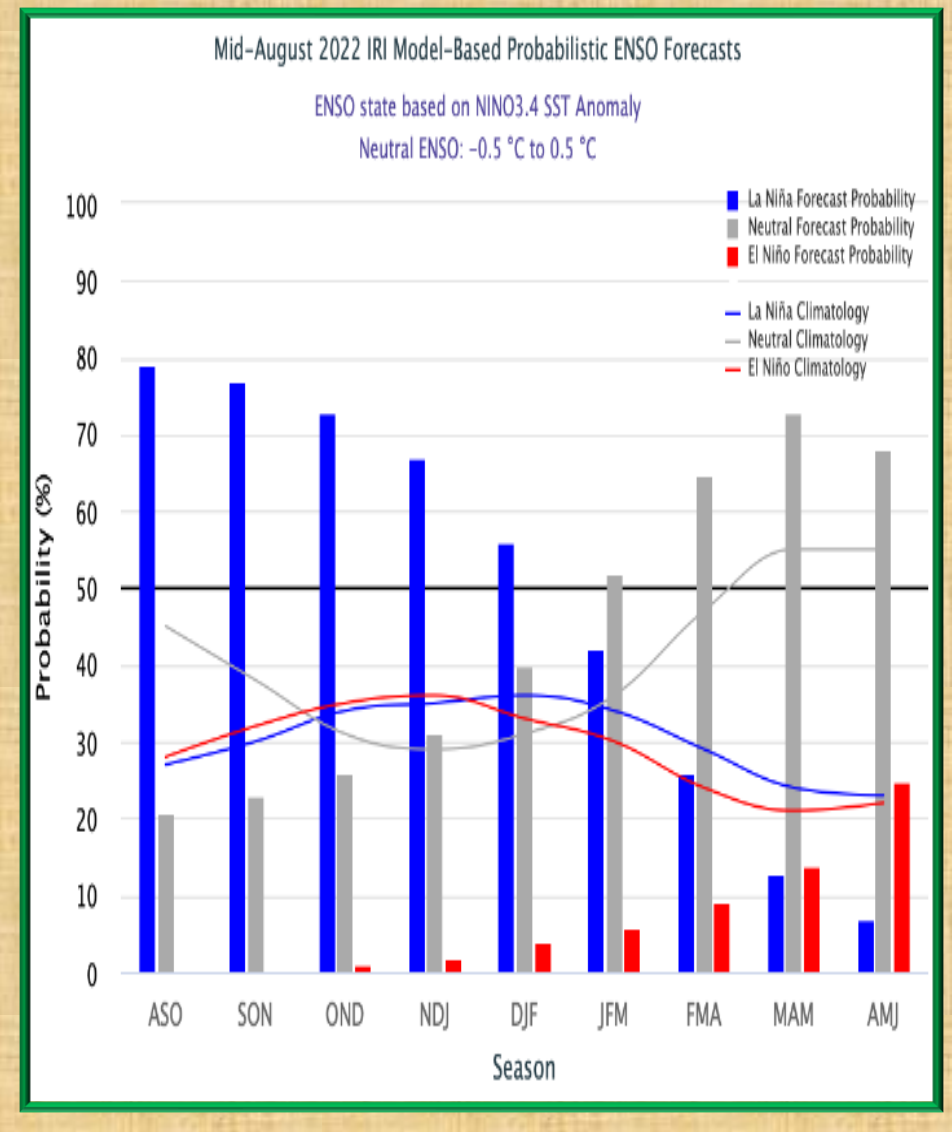
ENSO Alert System

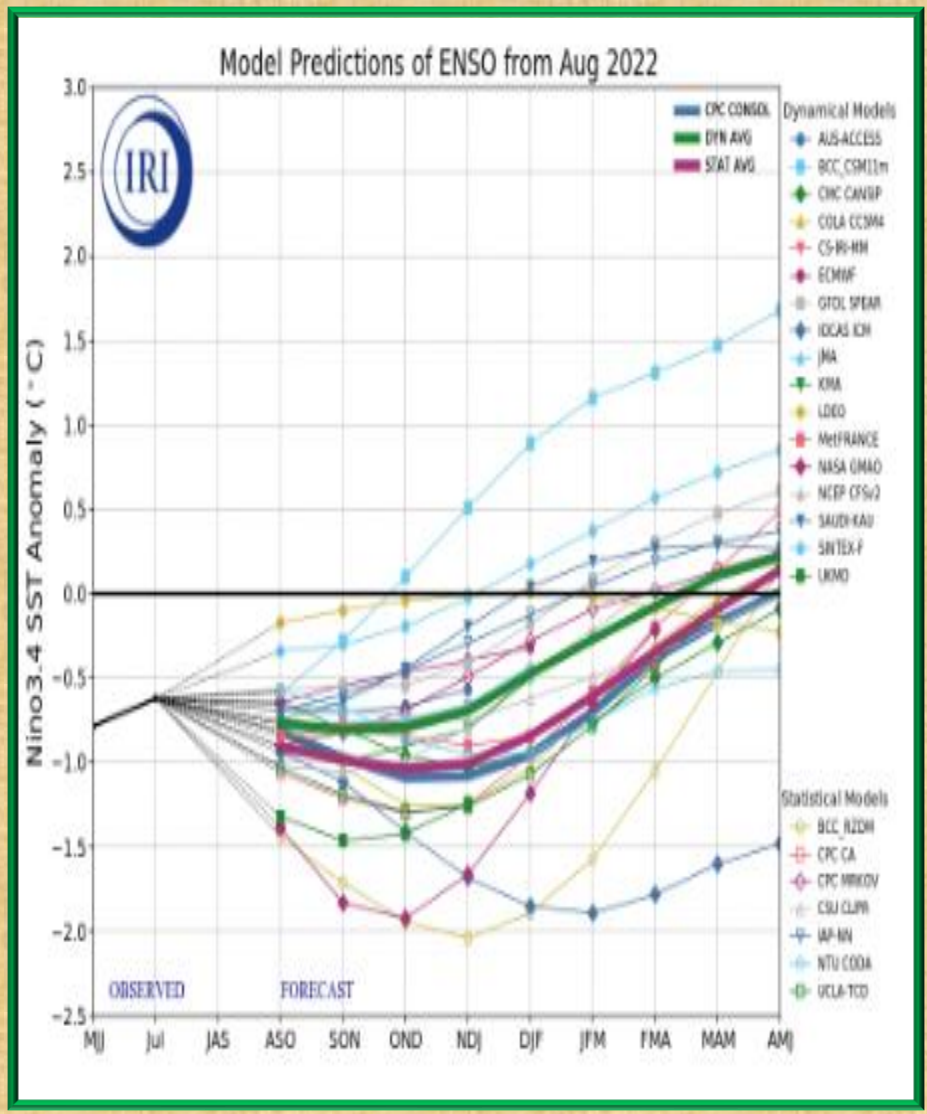
- El Niño or La Niña Watch: Issued when conditions are favorable for the development of El Niño or La Niña conditions in the next six months.

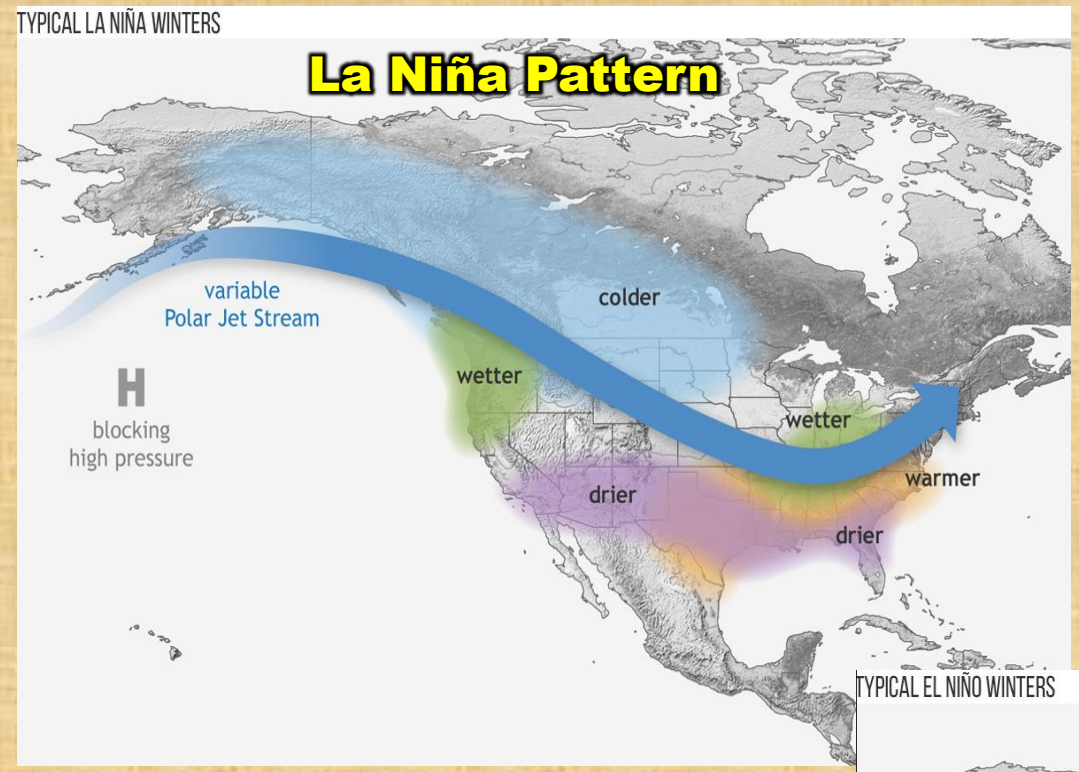
- El Niño or La Niña Advisory: Issued when El Niño or La Niña conditions are observed and expected to continue.

ENSO Forecast

ENSO is in La Niña status. Forecast shows decent chance of La Niña lasting mid winter, with slight tendencies towards neutral late winter into spring of 2023.

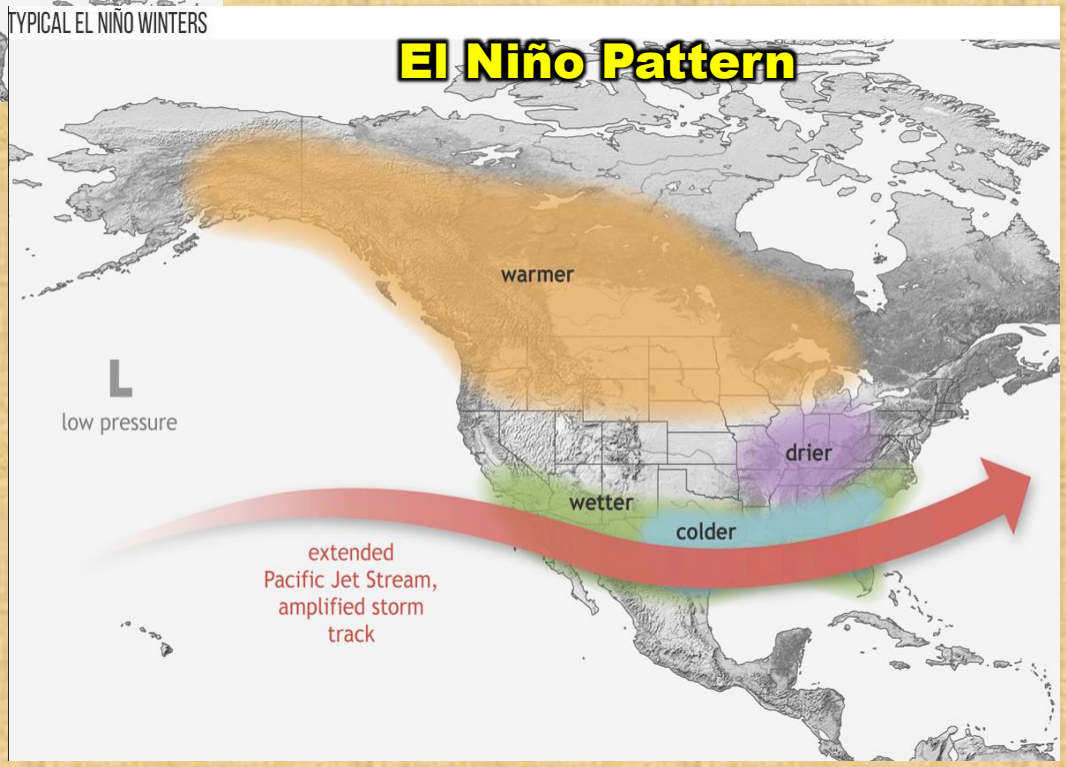


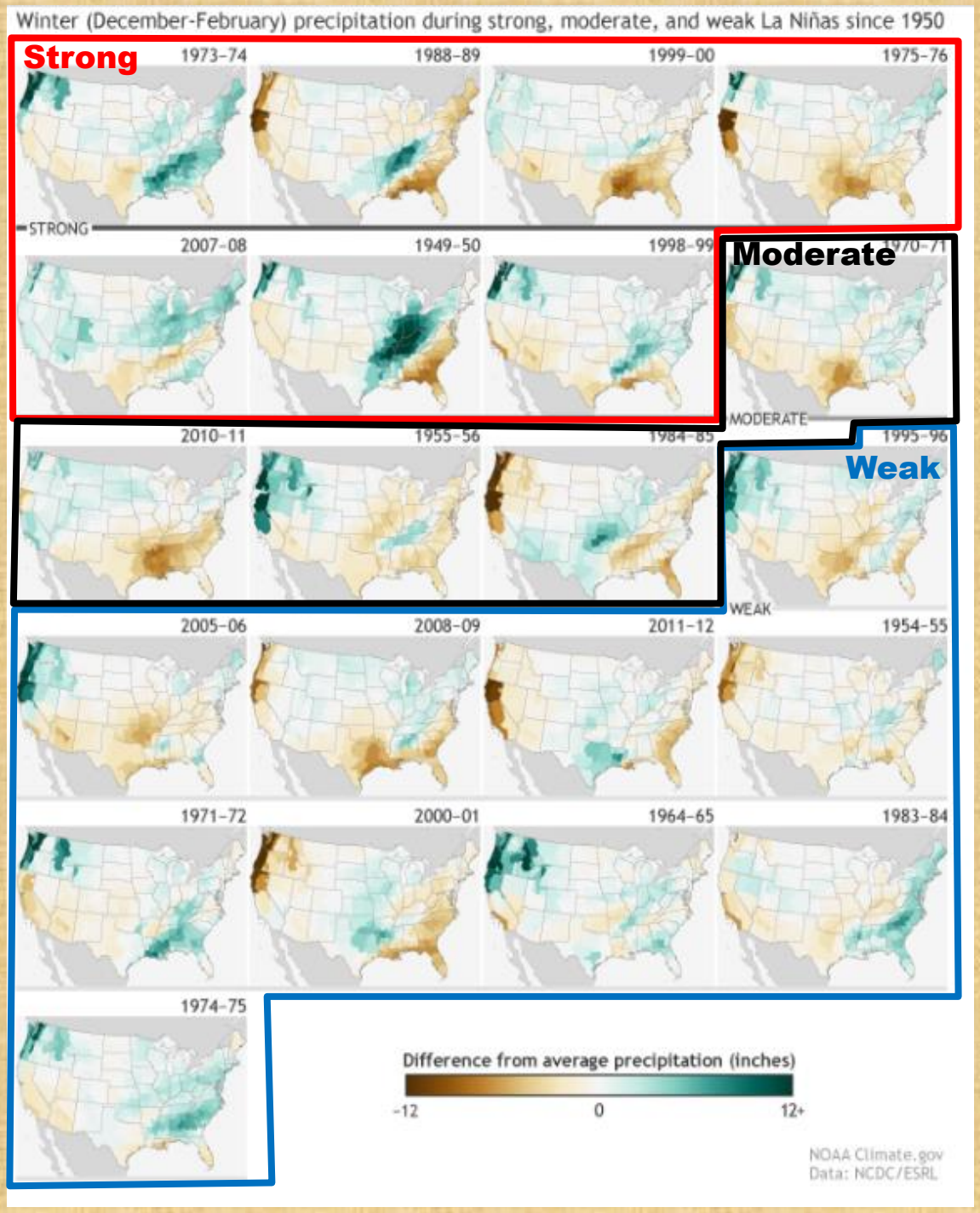




With a La Niña pattern, a ridge of high pressure tends to build off the west coast of the U.S., blocking most of our Pacific winter storm systems. These storms tend to end up moving across the northern Plains and down to the southeastern part of the country. Of course it is important to remember that these patterns are only what typically happens and are not guaranteed to occur.

With El Niño, we often see the opposite pattern where the eastern Pacific ridge of high pressure is often weak or non-existent, allowing winter storms to sweep across the southern U.S. This typically will give the south-western U.S. above normal precipitation.



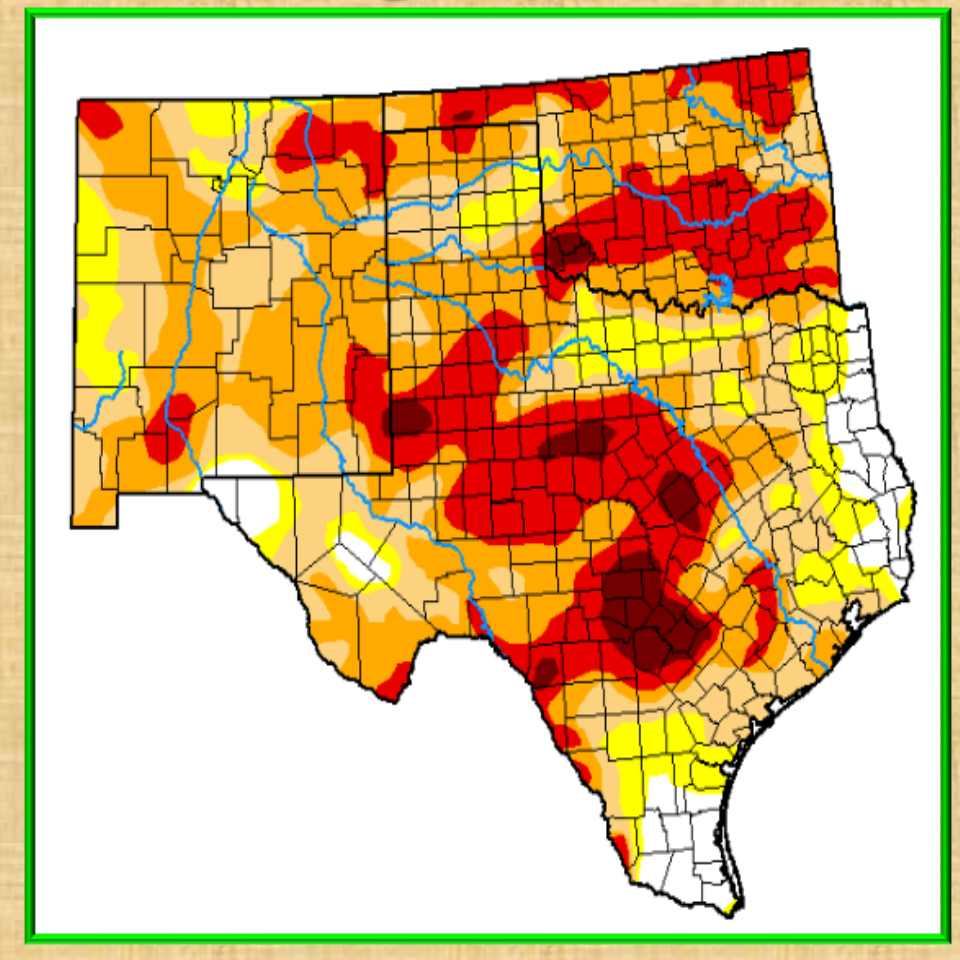


Examples of the numerous La Niña winters since 1950. These maps depict the departure from normal precipitation amounts for a winter.

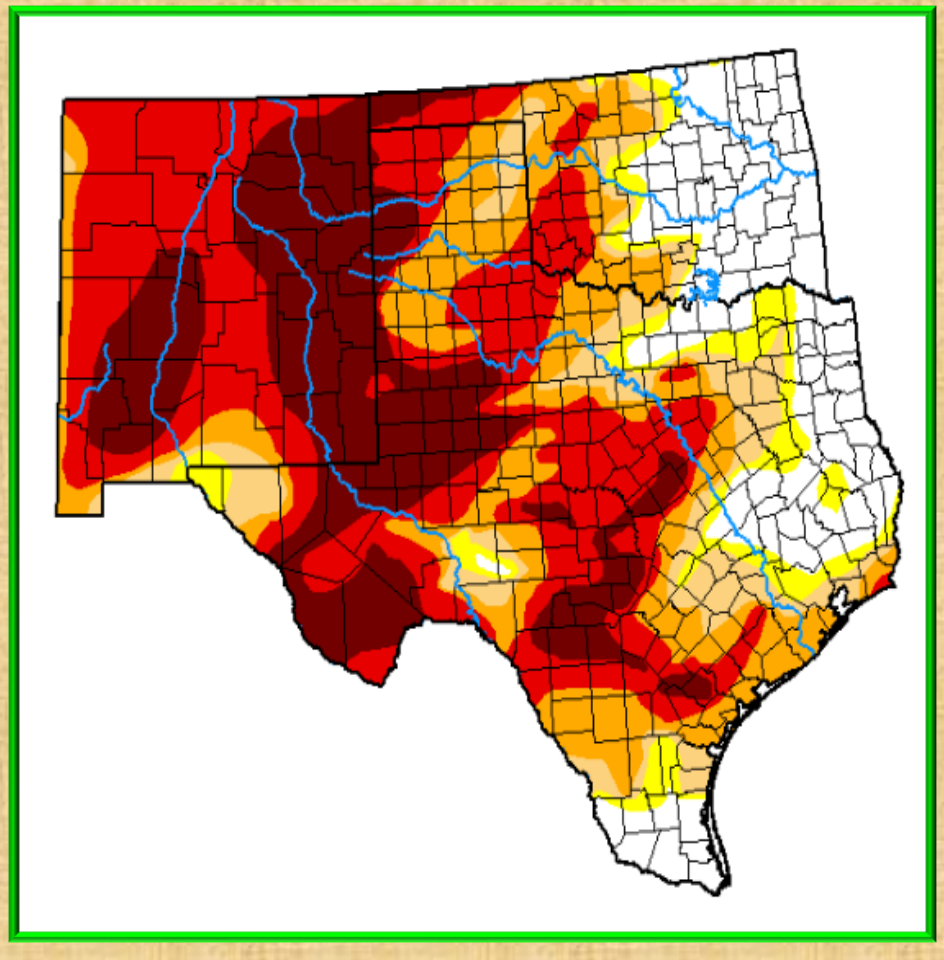
Current drought conditions and 3 month change

- Abnormally Dry – D0
- Moderate Drought – D1
- Severe Drought – D2
- Extreme Drought – D3
- Exceptional – D4

Aug 30, 2022

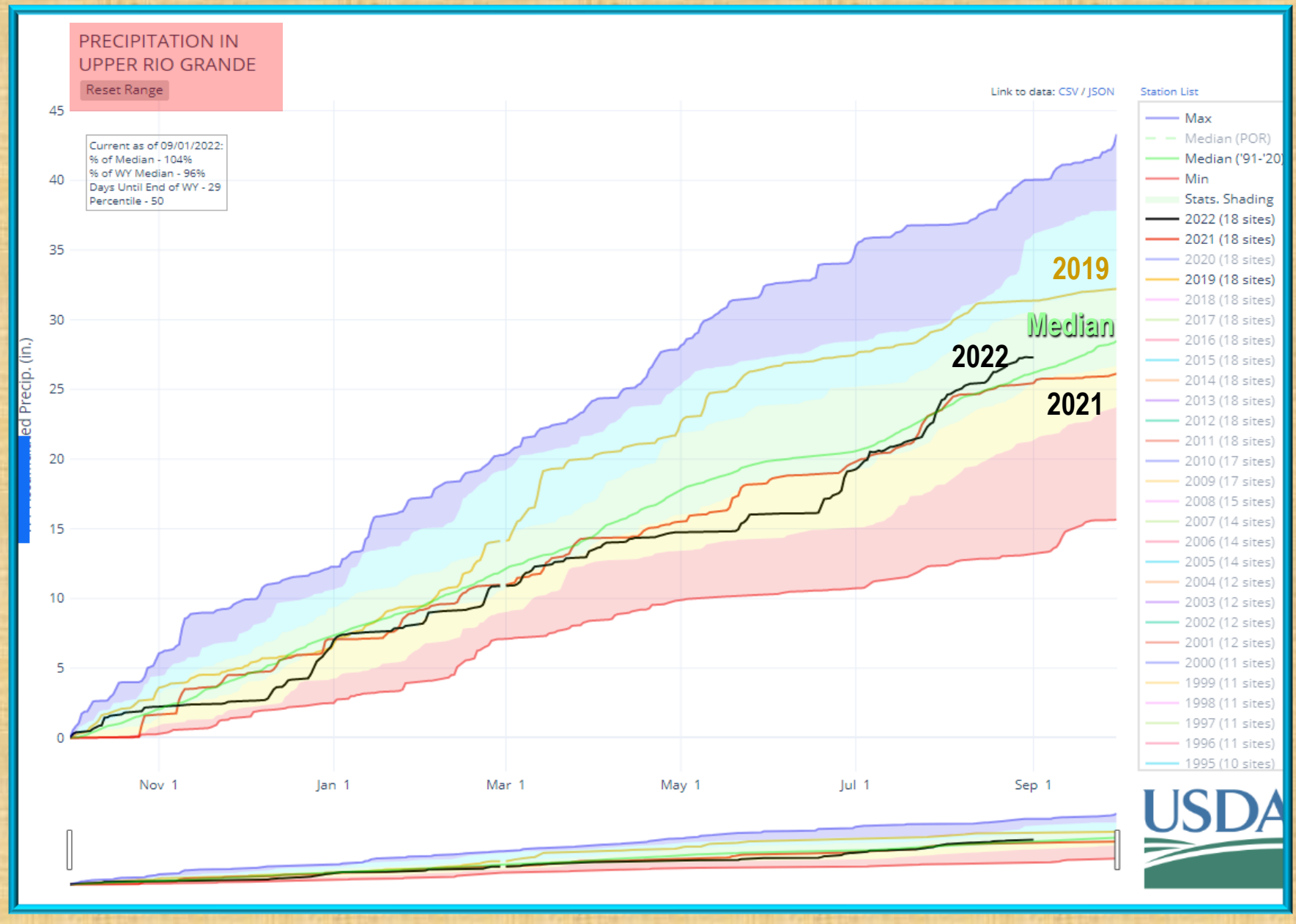


May 31, 2022



Precipitation for the Water Year Oct 1 – Aug 31, 2022

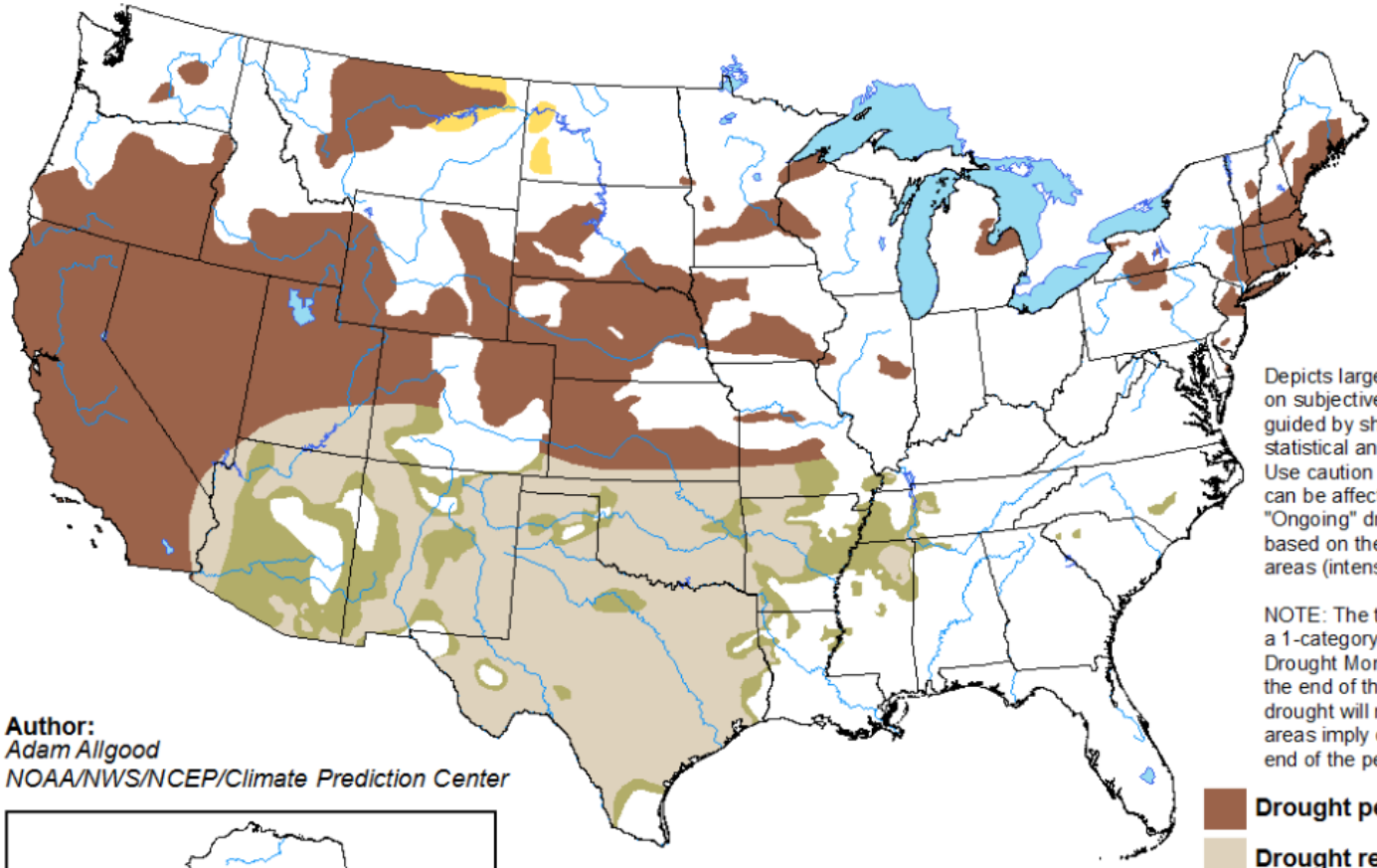
Compare to last few years and average values



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for August 18 - November 30, 2022
Released August 18



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

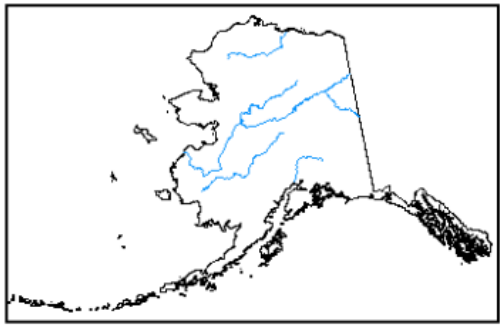
Drought persists

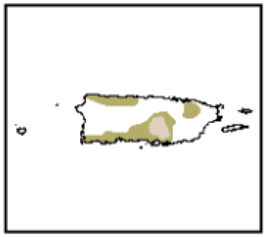
Drought remains but improves

Drought removal likely

Drought development likely

Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center





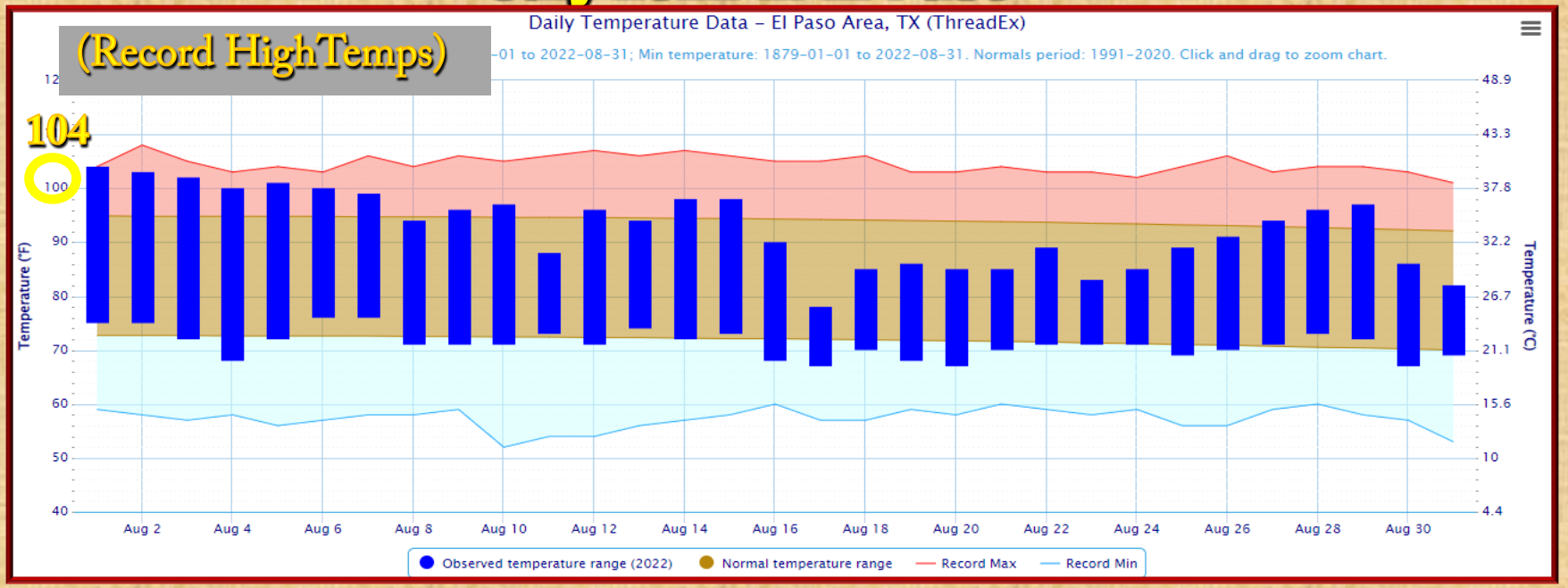
http://go.usa.gov/3eZ73

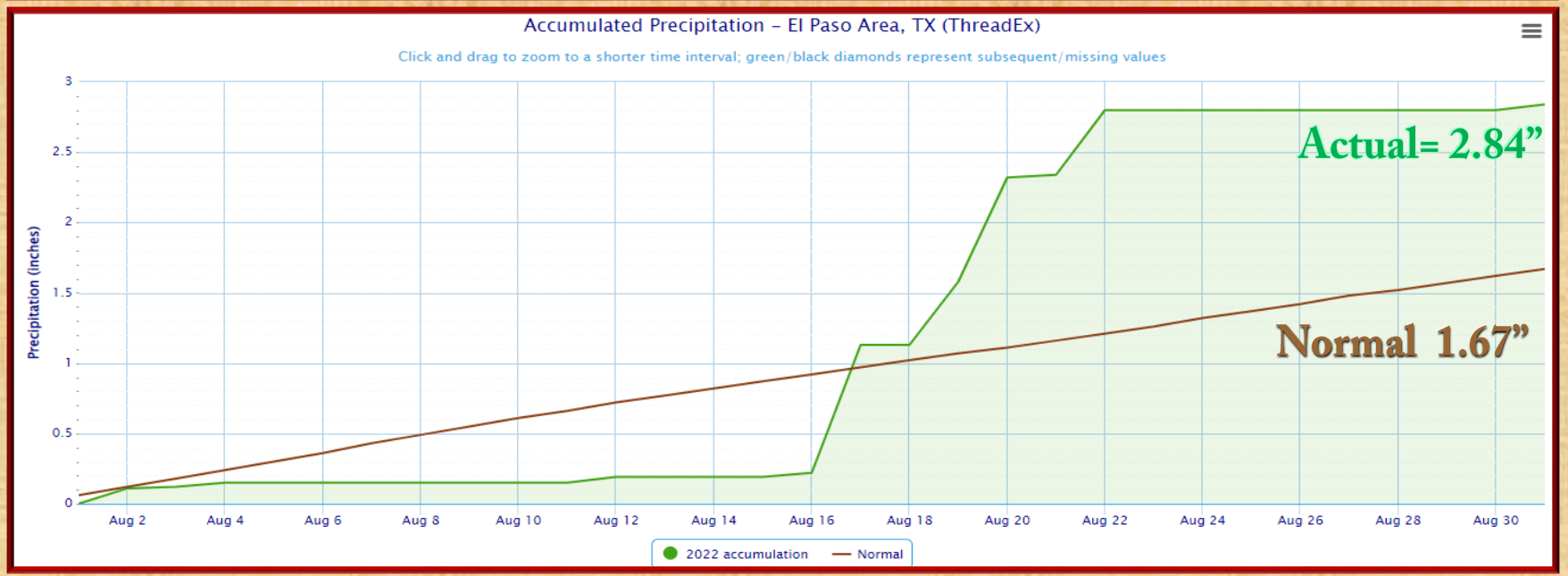
Temperature and precipitation data for July 2022 in El Paso

= record

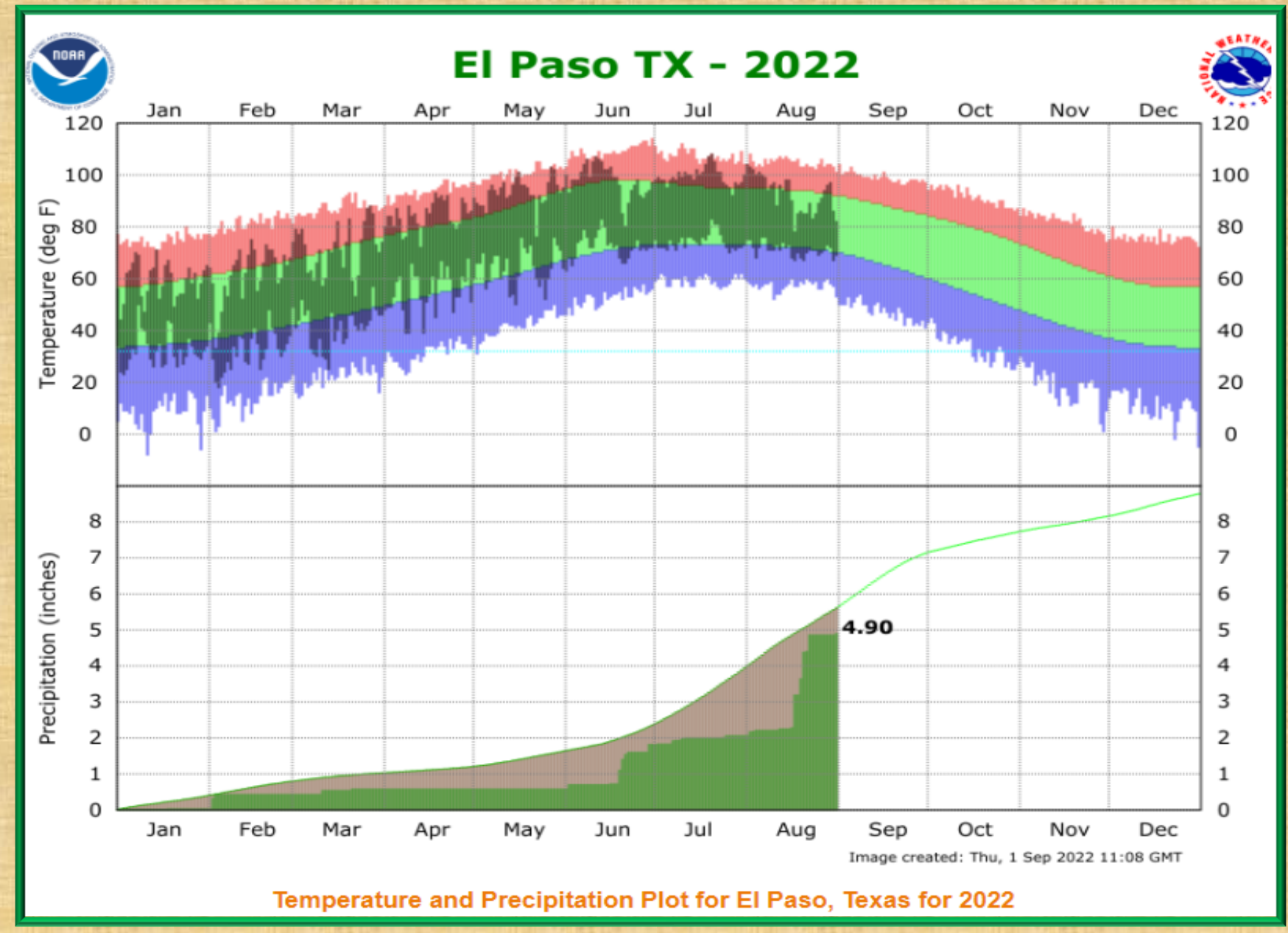
(Record HighTemps)

104





2022: Temperature and Precipitation
YTD Data for El Paso



Tracking the 2022 Monsoon Season across the El Paso Forecast Area

The big news with the 2022 Monsoon season is the abnormally early start to the season. The typical Monsoon season starts around the first week of July, but this year it started around June 20, and as of this writing is still in an active period. From June 18 to now, the entire area has seen at least normal rainfall, with most areas receiving 200 to 400 percent of normal. This has begun to moderate drought conditions, and hopefully this trend will continue in July.

We can track the beginning of the Monsoon season by looking at several factors. First the upper air pattern had switched from the cold season westerly flow to the warm season southerly flow from about June 18 to 23 [see fig 1]. We look for dewpoint temperatures to reach a 4 day stretch of 50 degrees or higher, and that took place on June 21 [see fig 1]. Thus the Monsoon season generally began on June 21, some 15 days ahead of schedule.

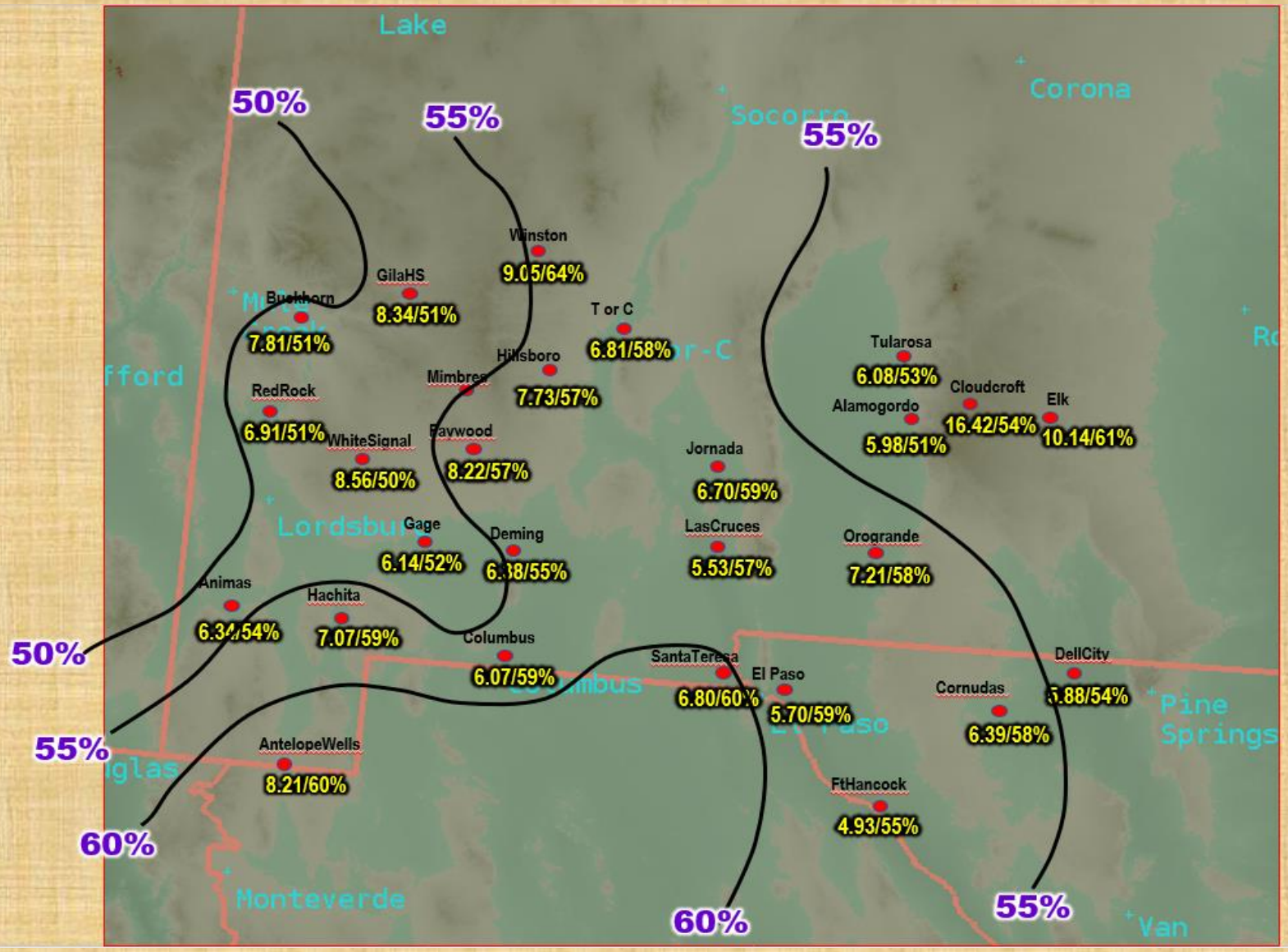
The second set of data we then look at are the sea surface temperatures of the northern Gulf of California and western Gulf of Mexico. These factors will give clues as to how much rain can typically be expected once specific thresholds are met. The first threshold is the date at which the northern Gulf of California reaches 26C degrees. This threshold was reached on June 16, some 10 days

Tracking the 2022 Monsoon Season across the El Paso Forecast Area

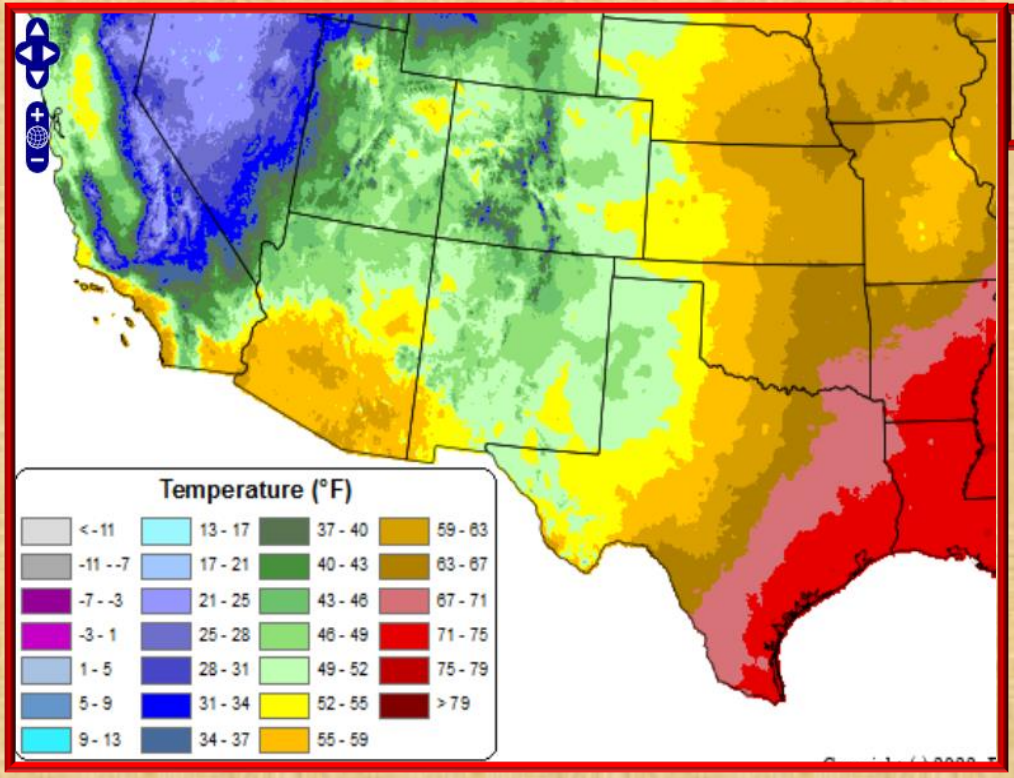
ahead of schedule. Studies have shown that once this occurs, the rainfall should begin around 4 to 7 days later. This proved to be true as widespread rainfall began June 19 through the 21 across the area. The next item to watch for is when the sea temperatures reach 29C degrees in the northern Gulf of California. This normally occurs around July 25, but rapid warming in the Gulf allowed the northern Gulf to reach 29C degrees on June 29 [see fig 3]. Once this mark is reached, research shows that roughly 67 percent of the total Monsoon rainfall will occur [see fig 4]. Sea temperatures in the western Gulf of Mexico coincidentally also reached 29C degrees on the 29. Early research on this shows that about 75 percent of the total Monsoon rainfall occurs. Hopefully this holds true this season. We can also look at outgoing longwave radiation (OLR), which measures cloud top temperatures associated with thunderstorms. A value of 240 W/m^2 indicates thunderstorms are occurring. Also 5 day widespread rainfall totals began around June 20. See fig 5 for both of these events.

Tracking the Monsoon season through August, we saw rainfall increase and become more widespread. Where July was a bit spotty, August saw the majority of the area receiving above normal rain. In fact many sites have already surpassed their annual monsoon season rainfall as of the end of August. With just an average September, all sites should end up above normal for the season. Lets hope for this outcome.

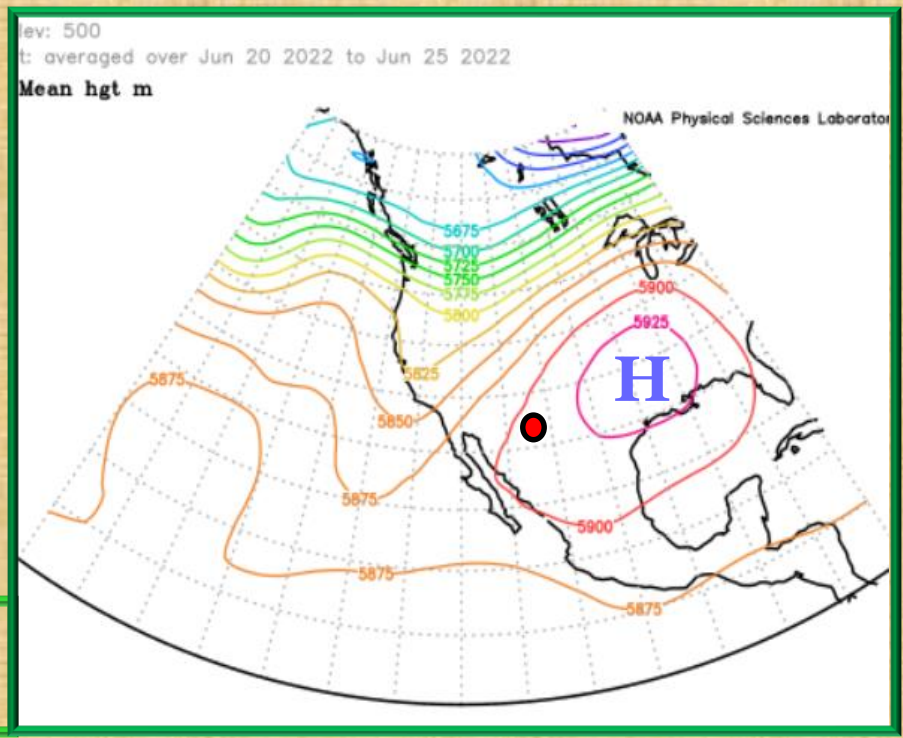
Percent of Annual Precipitation Falling During the Monsoon Season (Jun15-Sep 30)



Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig 1

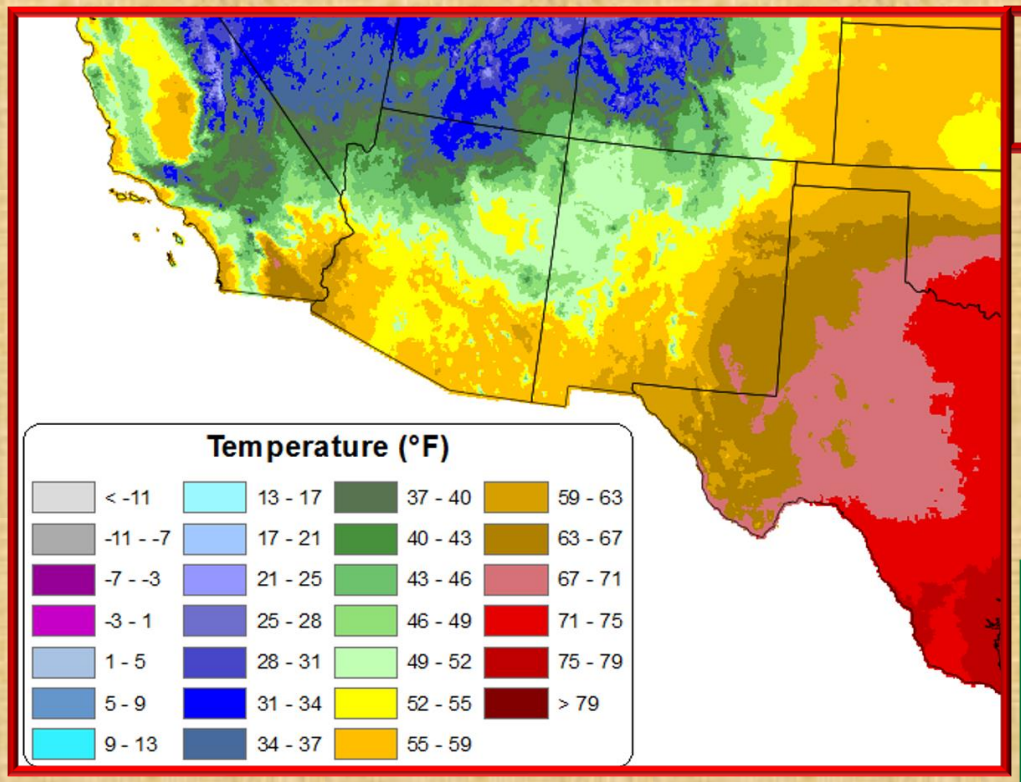


June 21 – Dewpoints reach into the 50s across the area

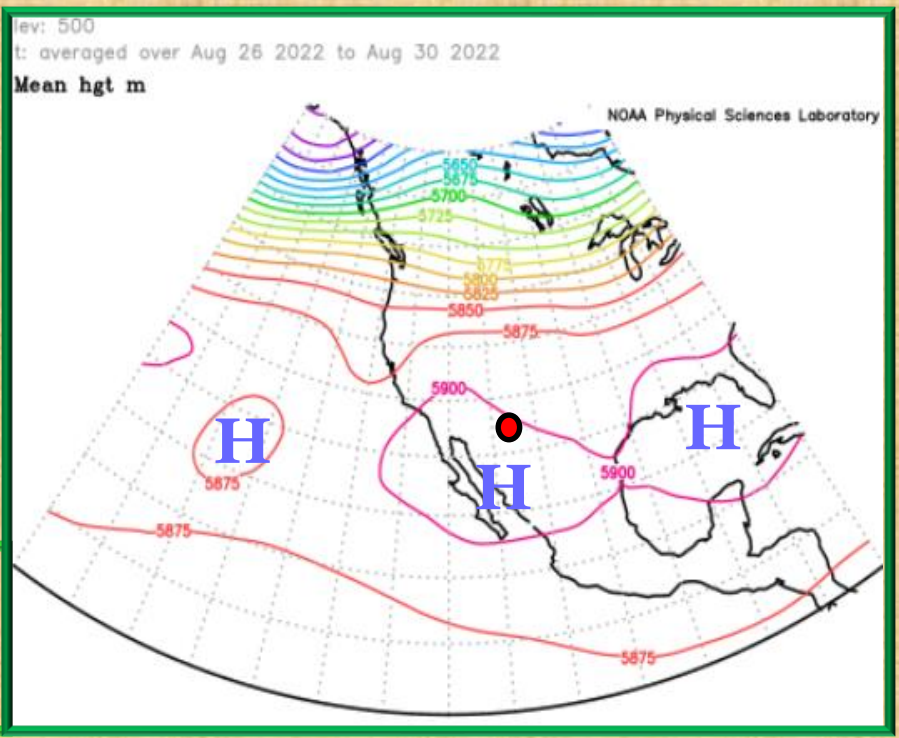


By June 25, 500mb (18,000 ft) sub-tropical high reaches the Desert Southwest

As we near the end of the 2022 Monsoon Season. Fig 2

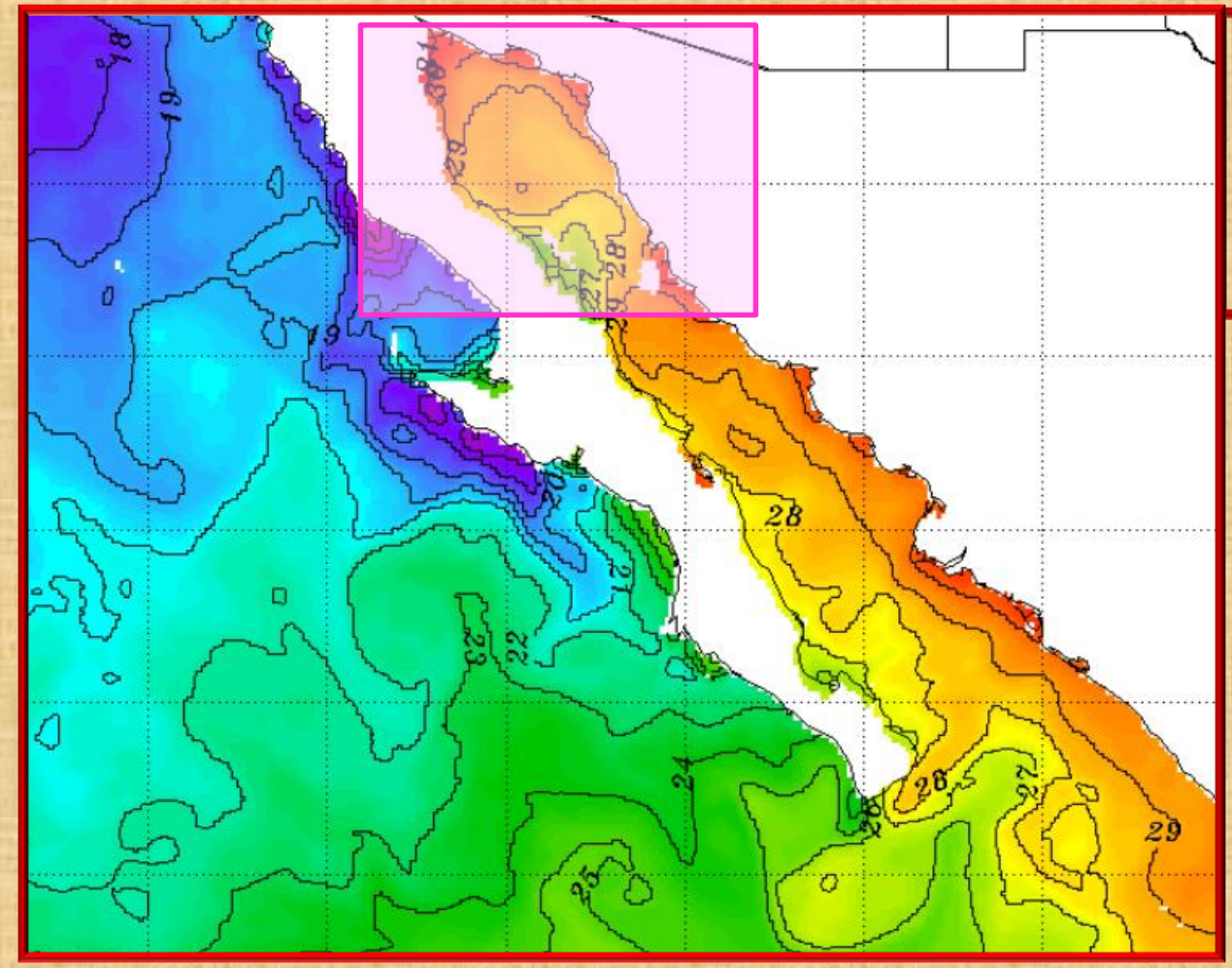


Aug 31– Dewpoints remain in the 50s to 60 degrees.



As of late August, the 500mb (18,000 ft) upper flow is still well in the Monsoon pattern.

Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 3



June 29 – Sea surface temperatures in the northern Gulf of California reach 29C deg (84F)

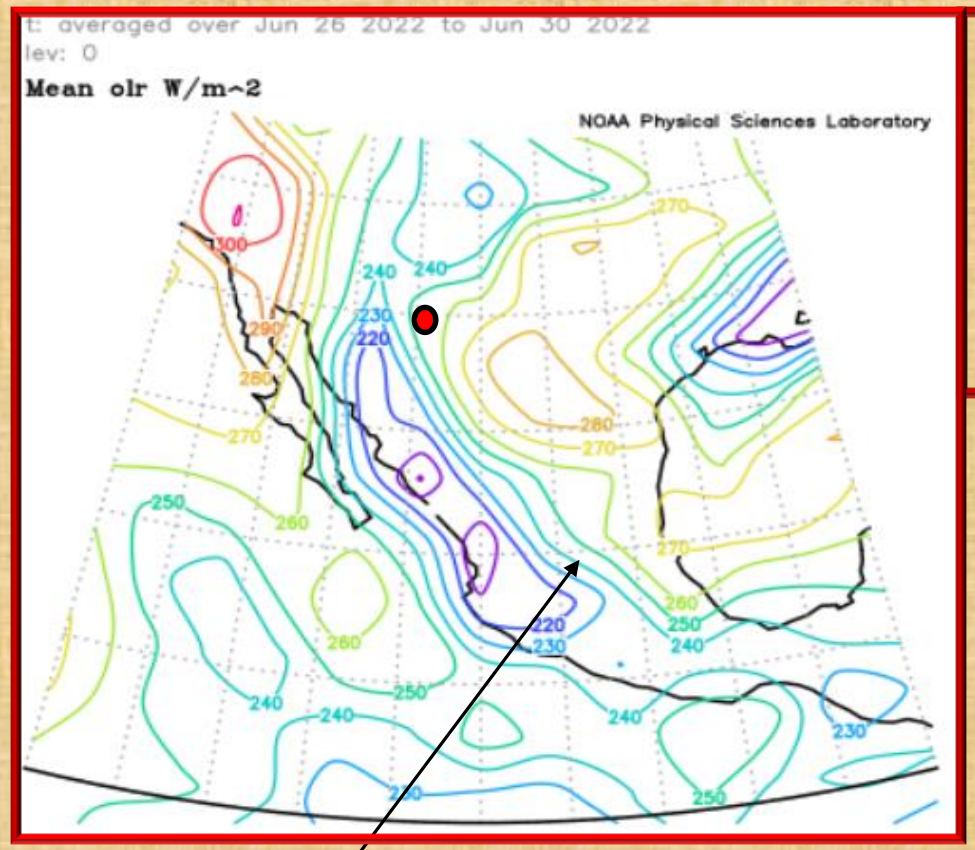
Fig. 4

Percent of Monsoon rainfall after 29C							
Year	29C Date	ELP	DMN	CLD	ANM	TCS	HIL
2021	Jul 16	51	75	MSG	MSG	60	63
2020	Jul 22	88	65	67	MSG	98	89
2019	Aug 8	83	91	62	67	71	49
2018	Jul 21	59	46	74	38	80	62
2017	Jul 23	58	67	66	48	88	61
2016	Aug 3	93	92	71	57	79	85
2015	Jul 27	63	43	56	60	53	61
2014	Jul 23	92	82	77	MSG	91	89
2013	Aug 8	61	68	61	23	88	75
2012	Jul 24	53	64	73	65	42	52
2011	Jul 29	37	90	36	67	86	62
2010	Jul 29	47	31	43	71	33	47
2009	Jul 24	54	61	47	63	56	65
2008	Jul 27	48	39	54	44	46	58
2007	Jul 26	65	62	60	66	91	72
2006	Jul 29	84	81	73	76	86	85
2005	Jul 30	95	79	72	92	83	87
Ave	**Jul 27**	**67**	**67**	**62**	**60**	**72**	**68**

ELP=El Paso Intl Airport
DMN=Deming Airport
CLD=Cloudcroft COOP
TCS=T or C Airport
HIL-Hillsboro COOP

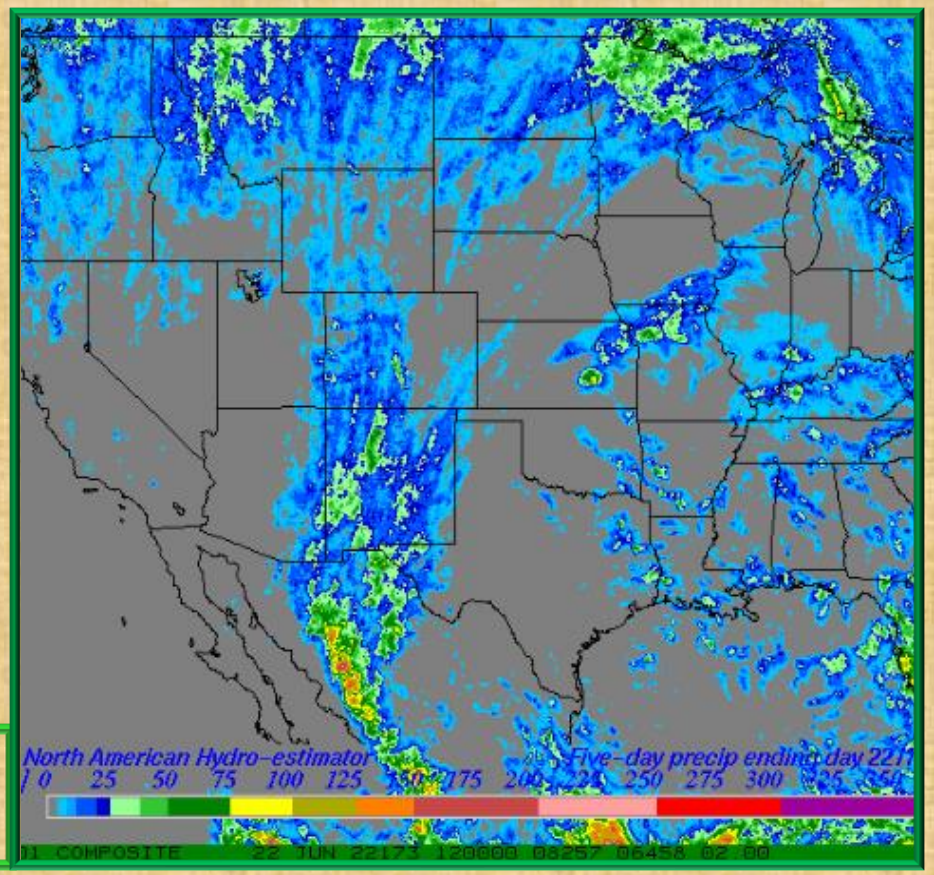
The northern Gulf of California sea surface temperature this year reached 29C on June 29. Research has shown that around 50-75% of the total Monsoon rainfall will fall after that date. Given that most of the sites listed above are well above normal, 50% is probably a reasonable forecast. Therefore the sites above are likely to double or triple the rainfall values of June 15 through June 29.

Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 5



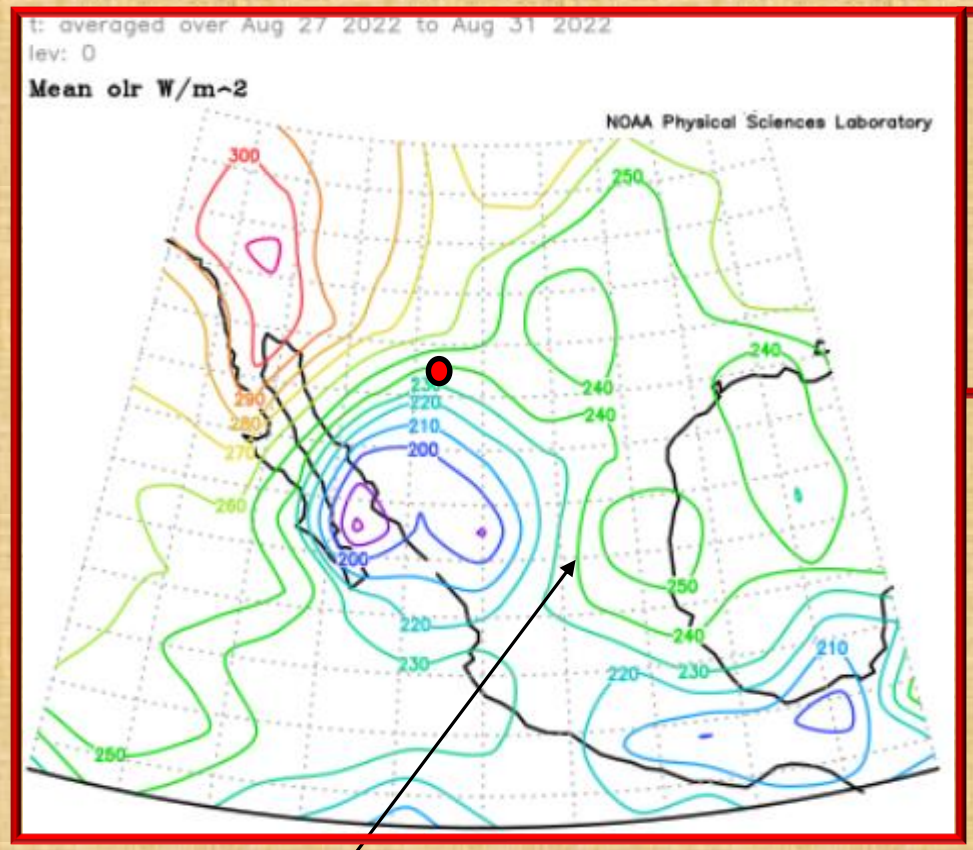
June 26 – Outgoing Longwave Radiation (OLR) diminishes to less than 240 W/m^2 Thick clouds and anvil tops from thunderstorms diminish the OLR values, often indicative of the monsoon moisture and thunderstorms moving into the area. (Pentad data Jun 26-30)

Teal lines=240



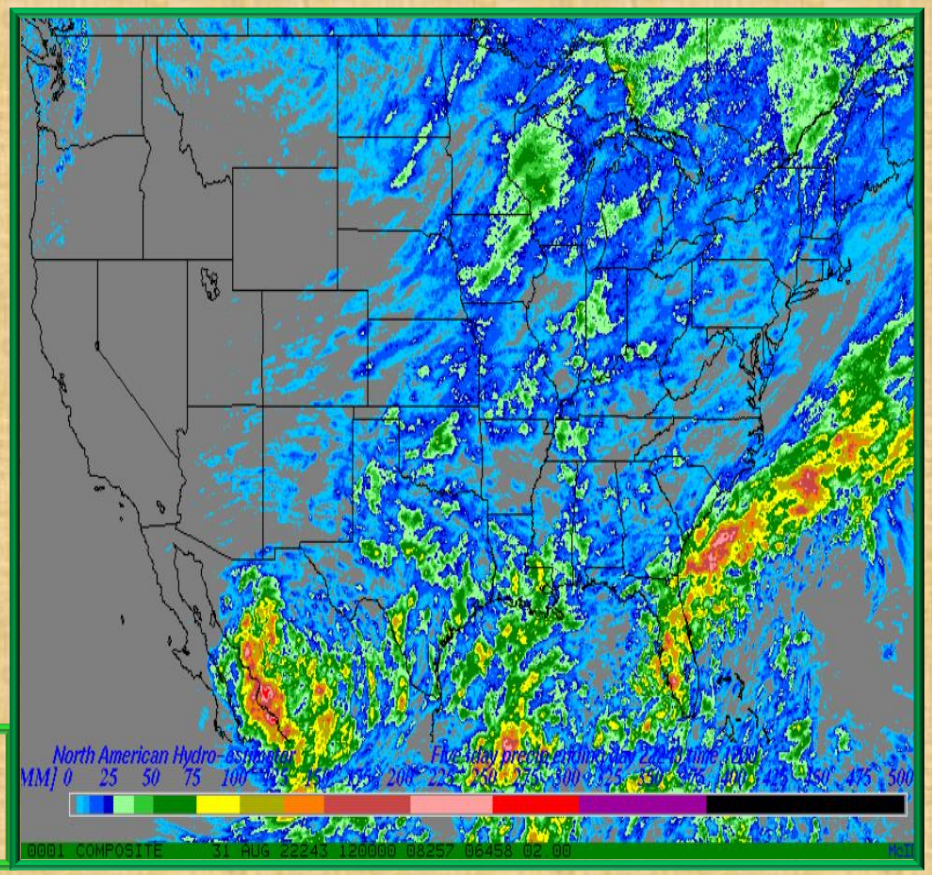
By June 18-22 the first area wide Monsoon precipitation occurs

Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 6



Aug 31– Outgoing Longwave Radiation (OLR) still remaining at level less than 240 W/m^2. Thick clouds and anvil tops from thunderstorms diminish the OLR values, often indicative of the monsoon moisture and thunderstorms moving into the area. (Pentad data Aug 27-31)

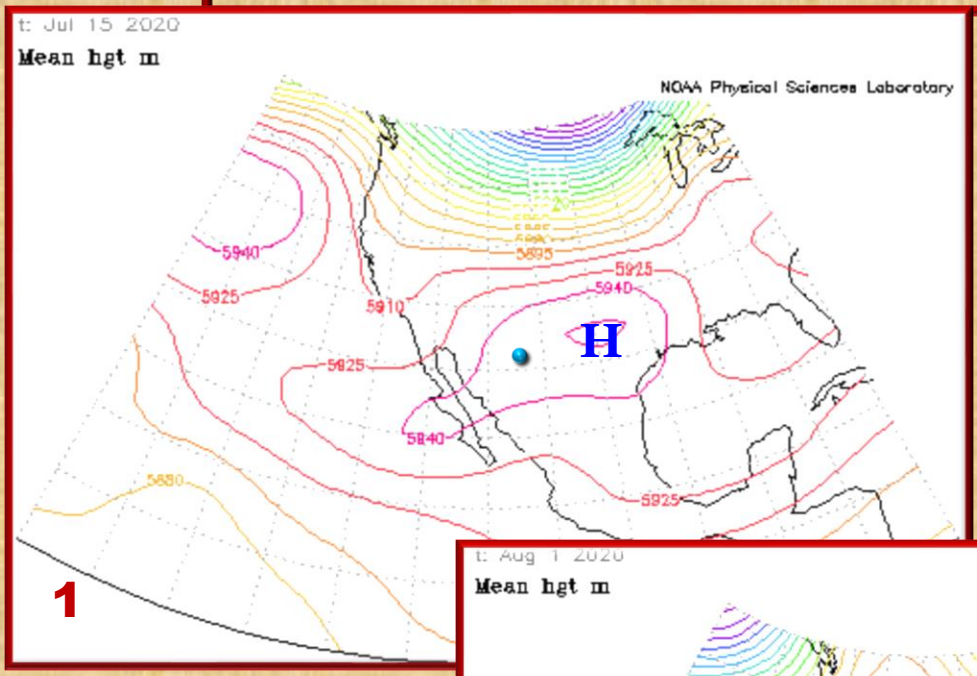
Green Line=240

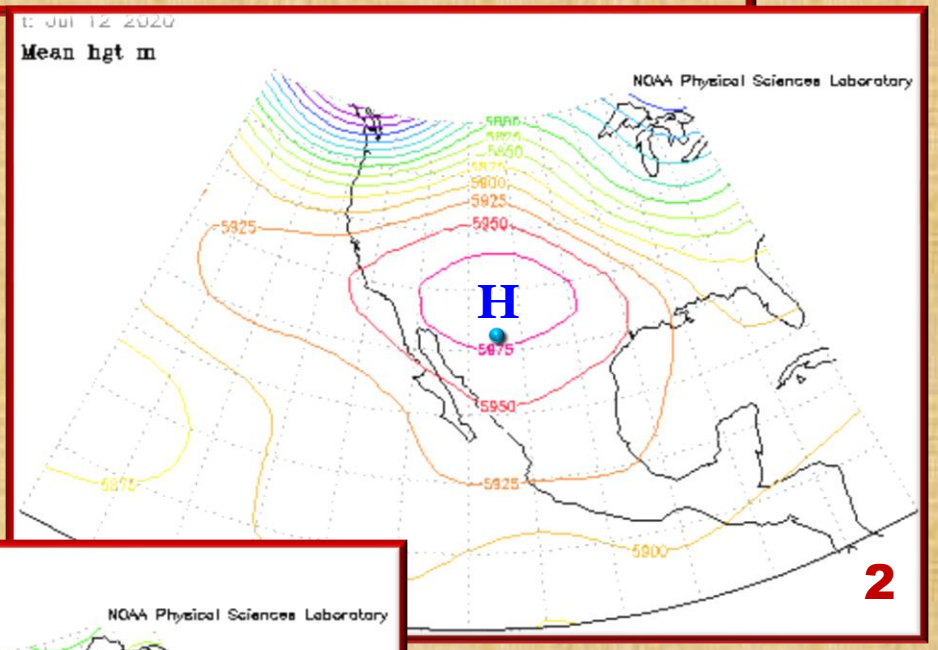


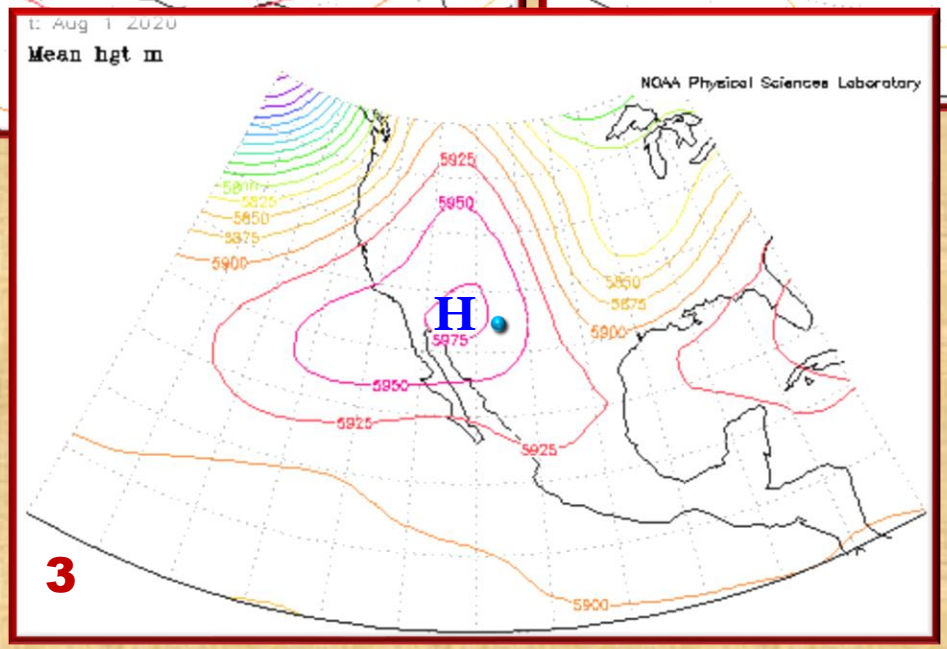
On Aug 31the Monsoon rainfall pattern was still going strong.

Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 9

Position of NAM upper high determines our rainfall potential. Blue dot represents El Paso.



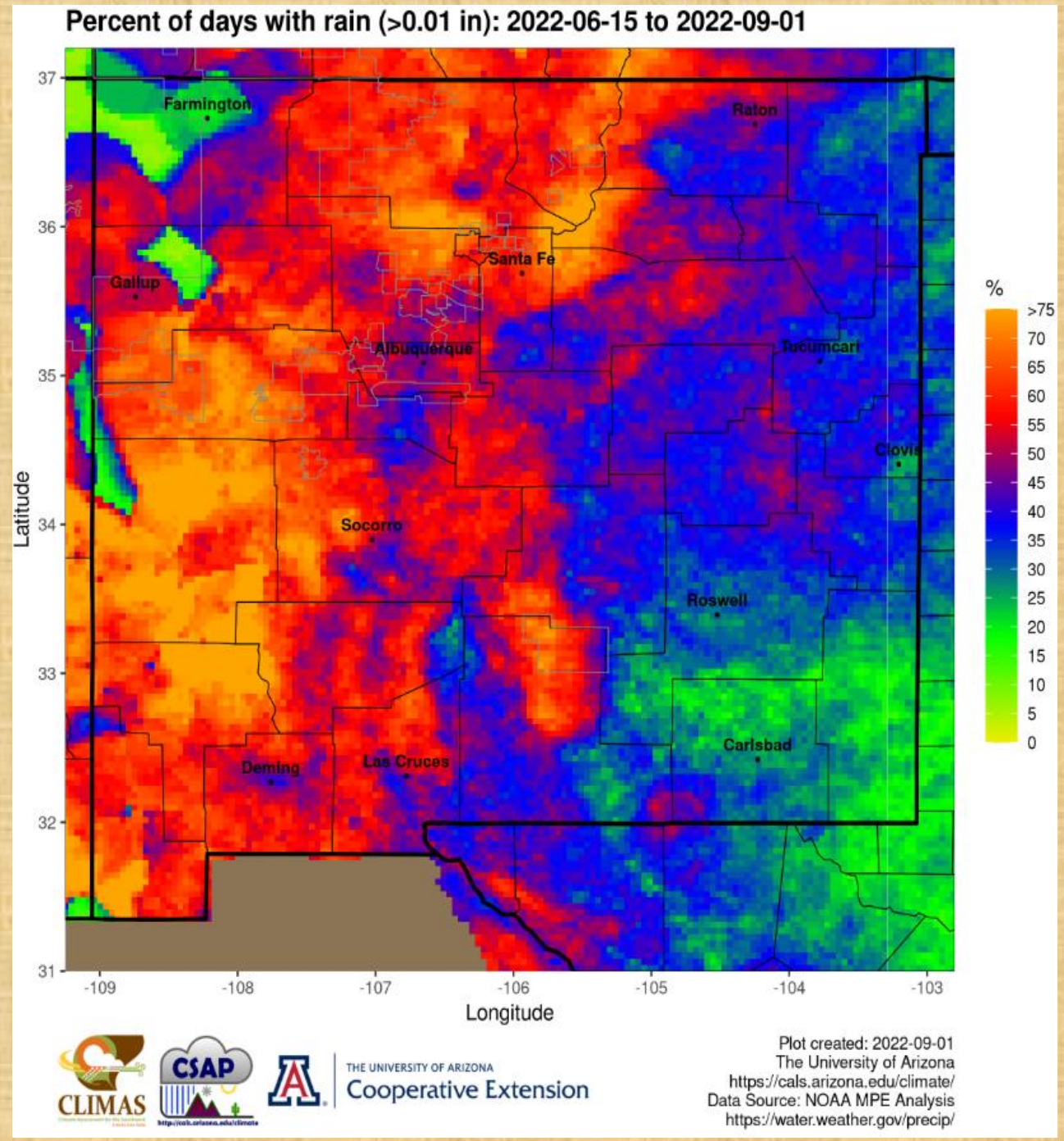




No. 1 High center east of New Mexico. Often brings ample tropical moisture and widespread heavy rain and flooding to the area under southerly flow.

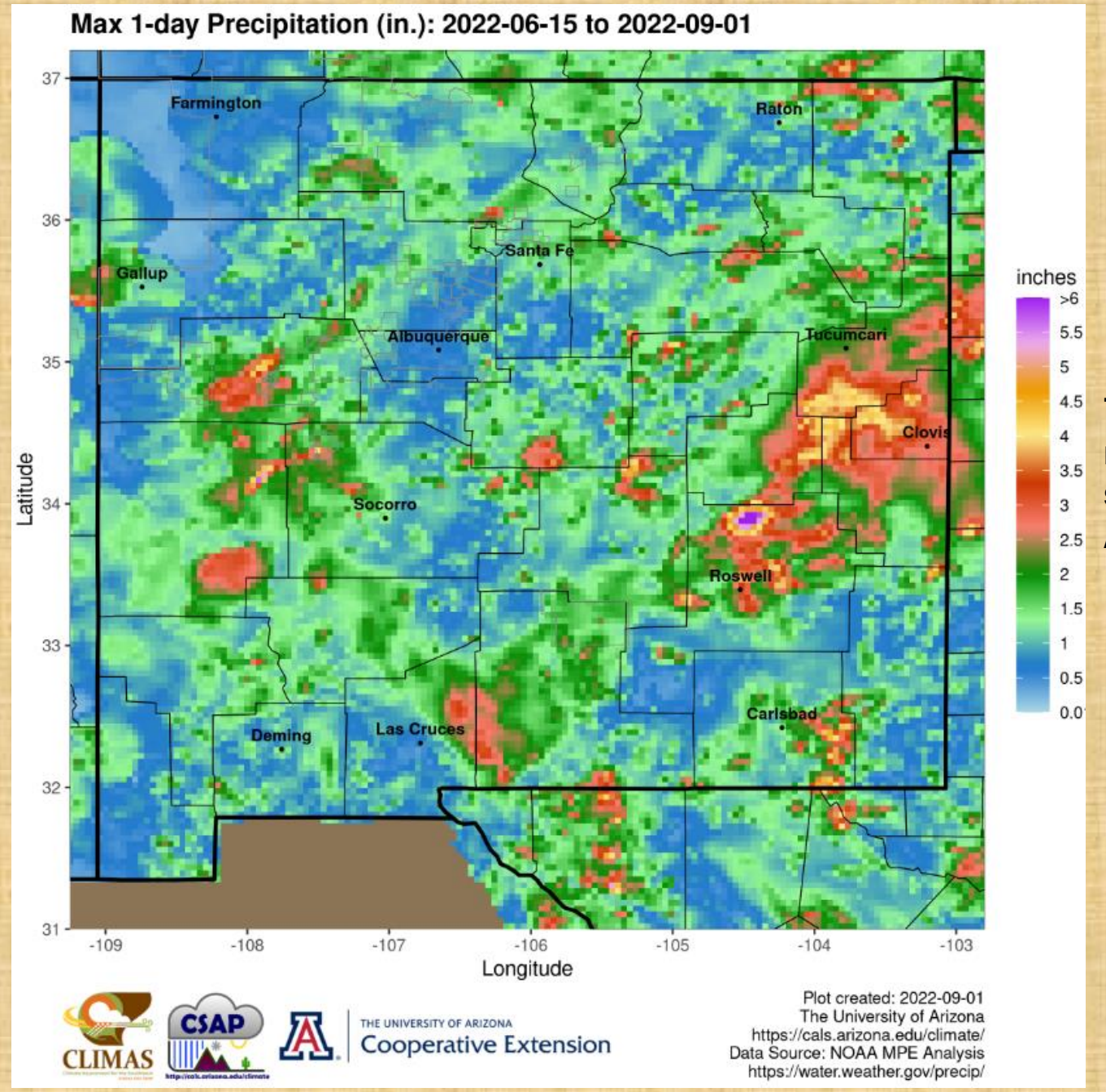
No. 2 High center over New Mexico. Often brings very hot temperatures and little if any rain (usually limited to the mountains).

No. 3 High center west of New Mexico. Often brings scattered storms with hit and miss heavy rains and large hail and strong wind potential.



CLIMAS
THE UNIVERSITY OF ARIZONA

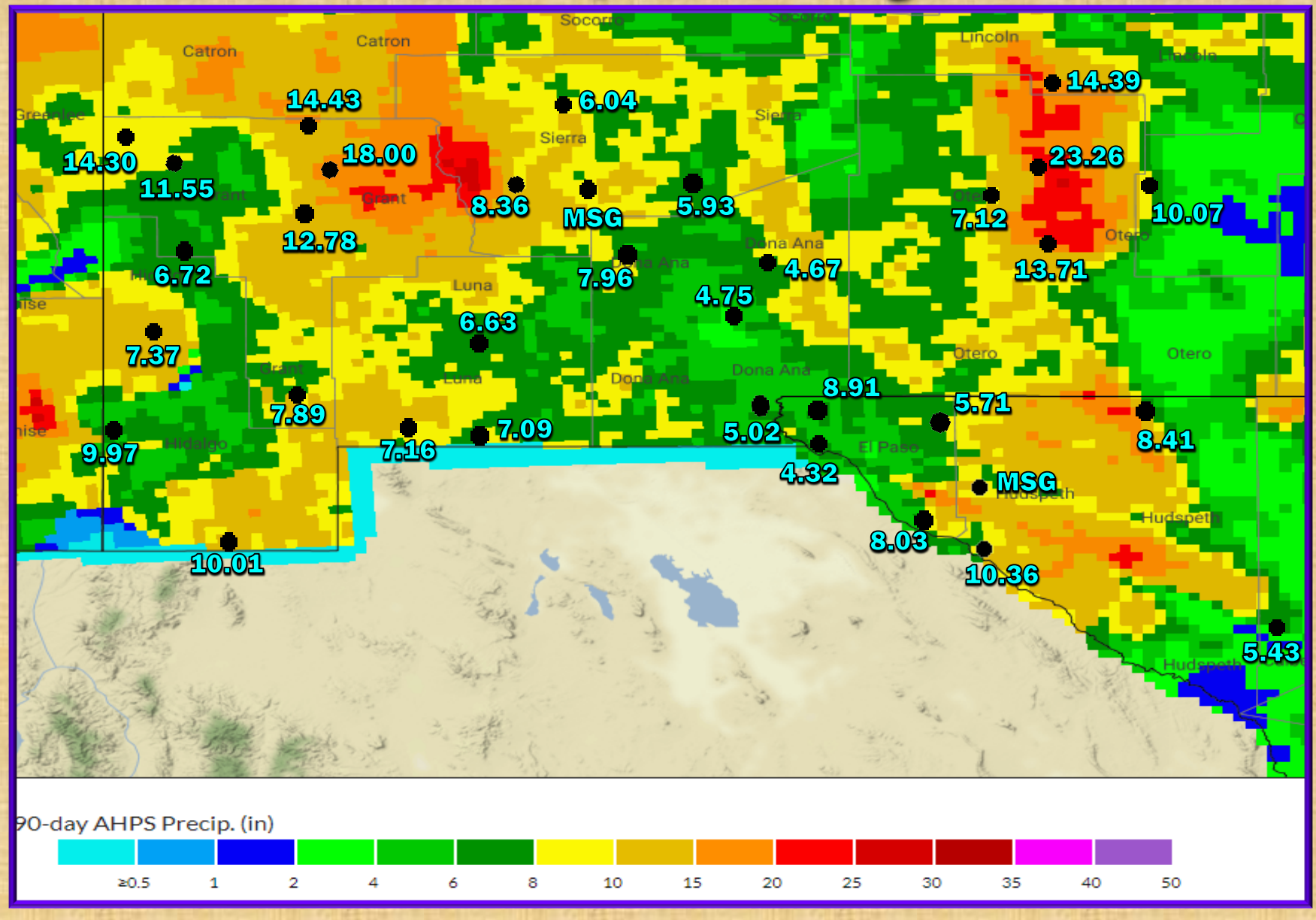
This map shows the percentage of measurable rainfall days during the Monsoon season. Courtesy of Climate Assessment for the Southwest.



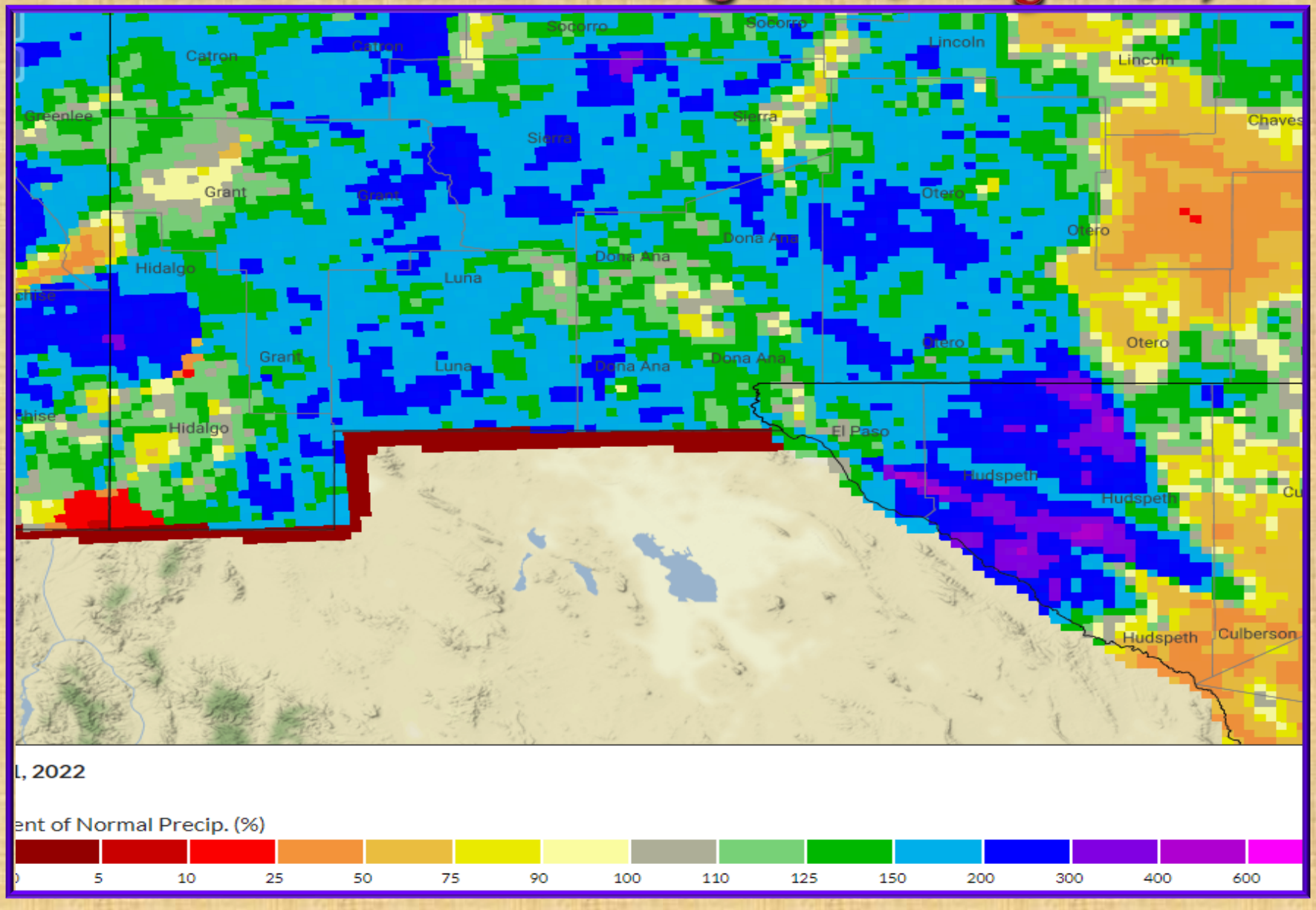
CLIMAS THE UNIVERSITY OF ARIZONA

This map shows greatest one day rainfall total during the Monsoon season. Courtesy of Climate Assessment for the Southwest.

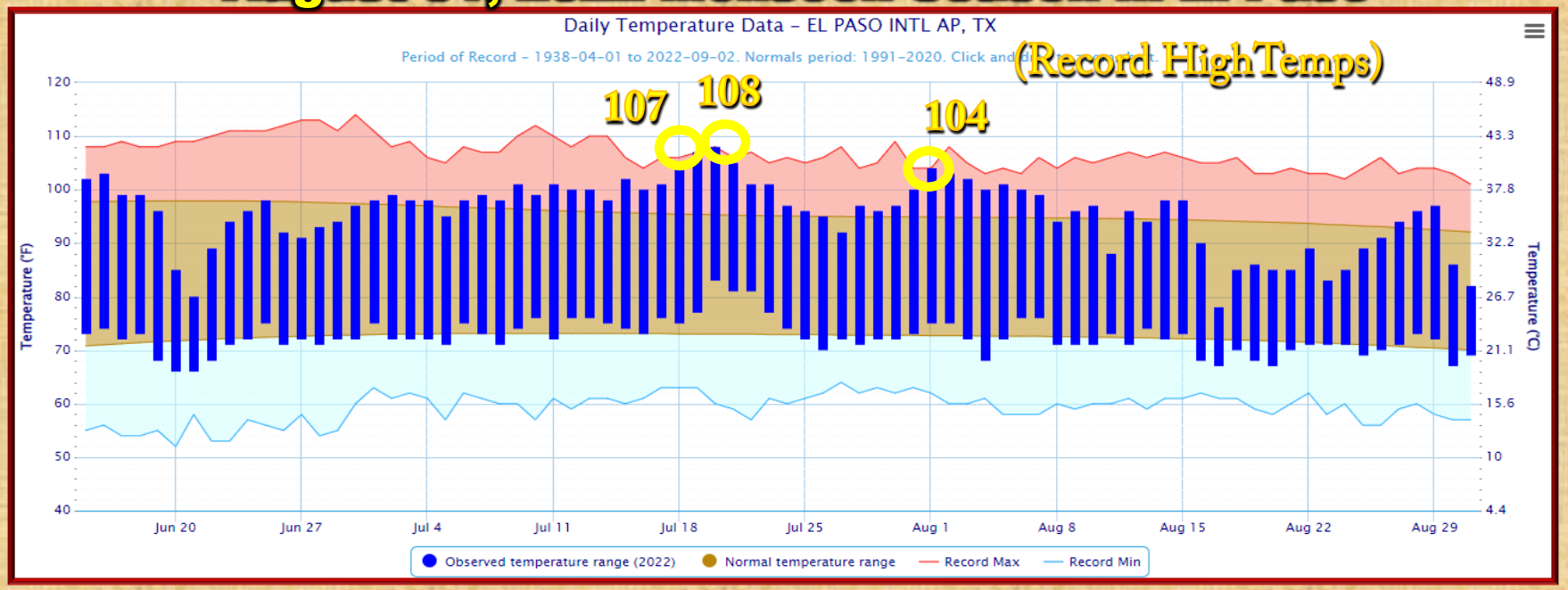
Radar rainfall estimate for the Monsoon Season 2022 (June 1 – August 31)

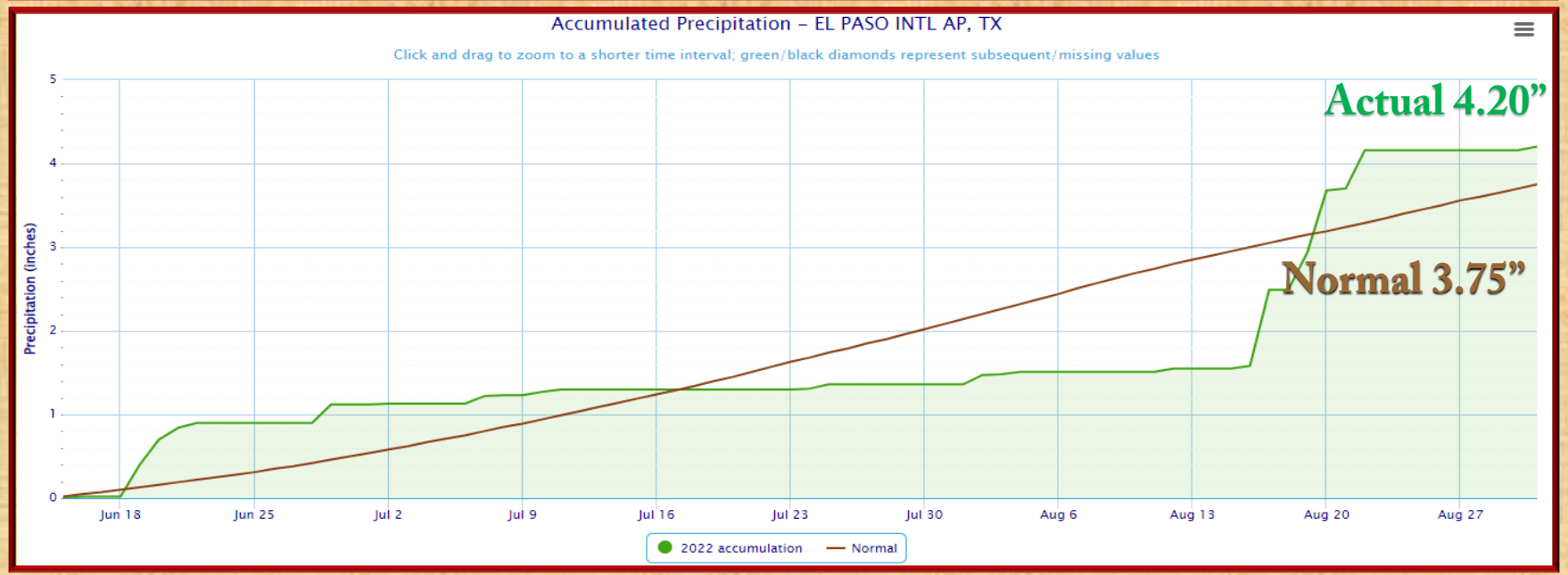


Radar rainfall estimate percent of normal for Monsoon season 2022 (June 15-August 31)



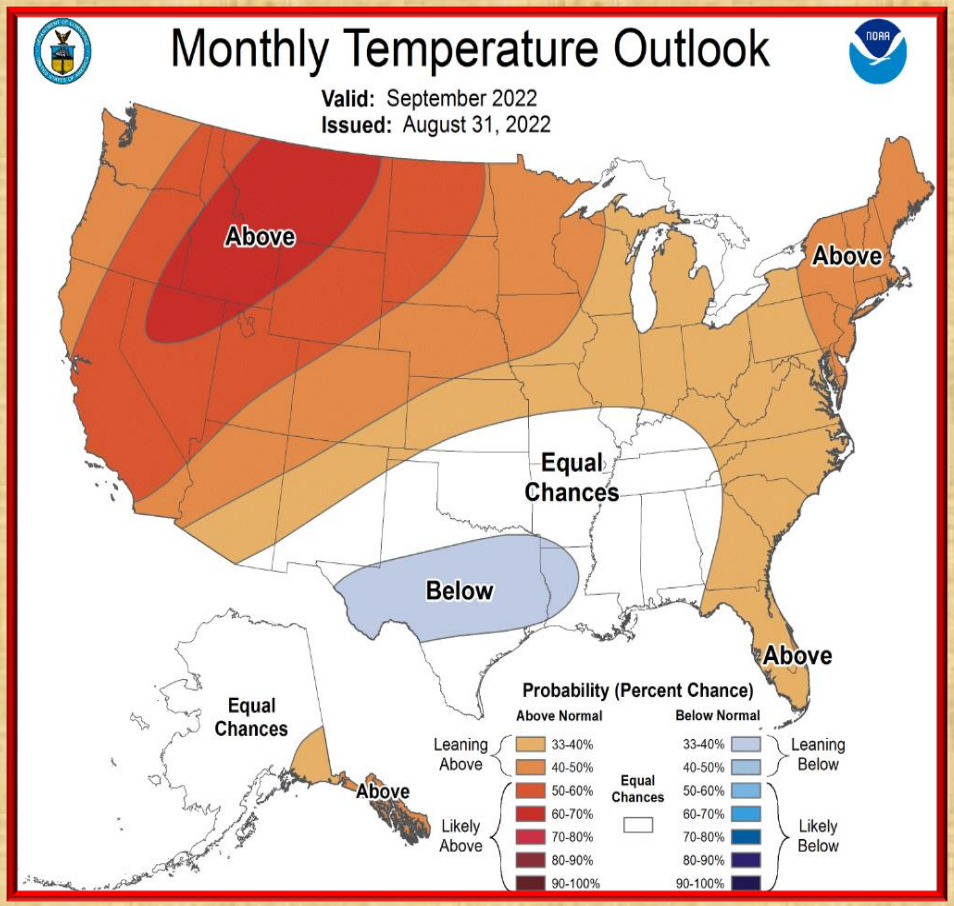
Temperature and precipitation data through August 31, 2022 Monsoon Season in El Paso



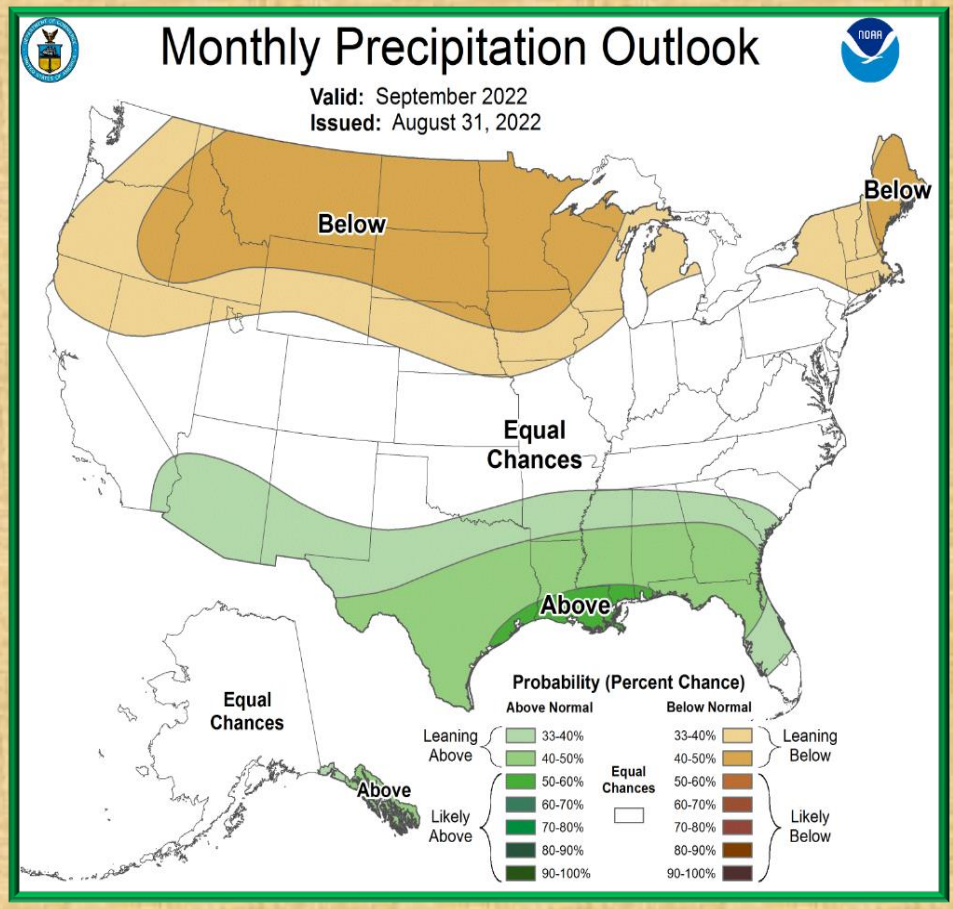


Temperature and precipitation outlook for September 2022

Temperature

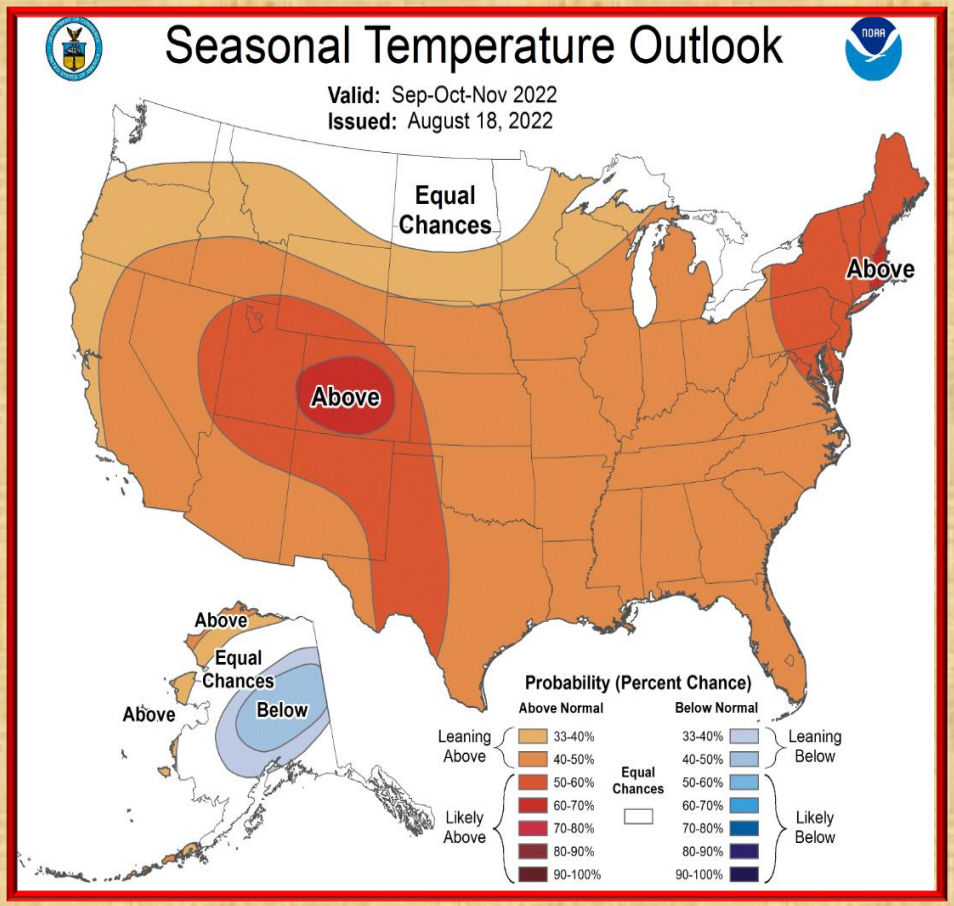


Precipitation

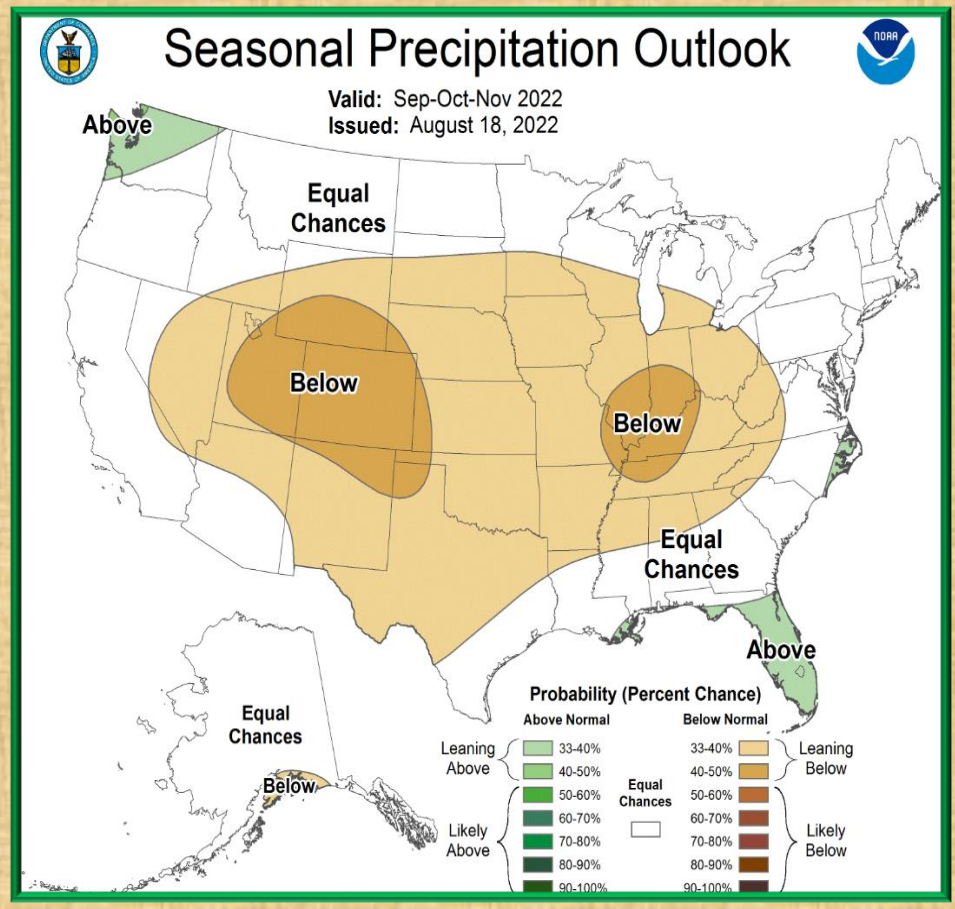


Temperature and precipitation outlook For September-November 2022

Temperature

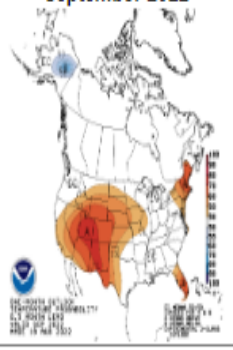


Precipitation

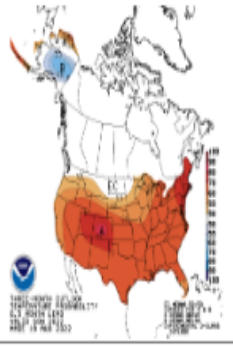


Temperature Outlook Through November 2023

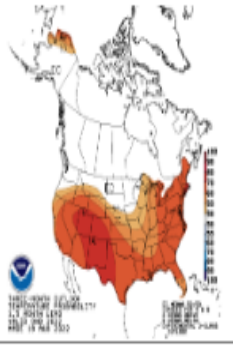
September 2022



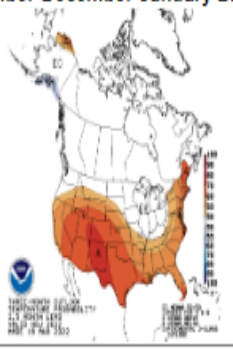
September-October-November 2022



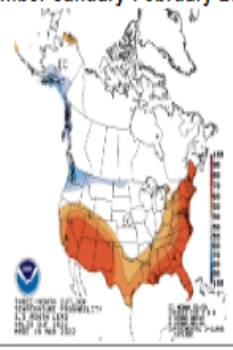
October-November-December 2022



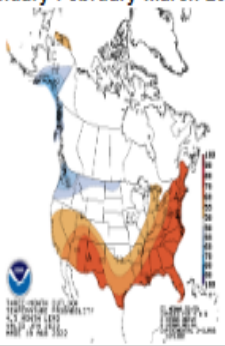
November-December-January 2022/23



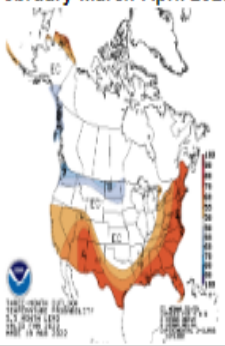
December-January-February 2022/23



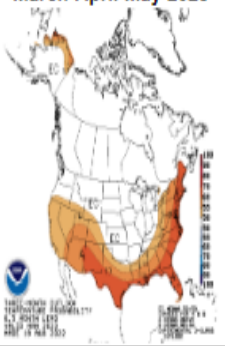
January-February-March 2023



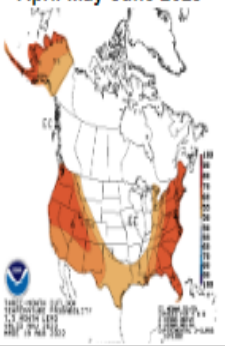
February-March-April 2023



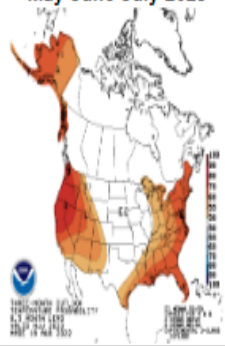
March-April-May 2023



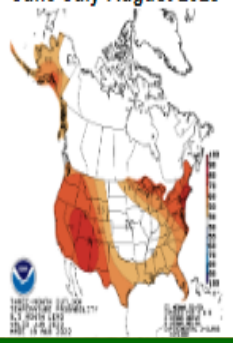
April-May-June 2023



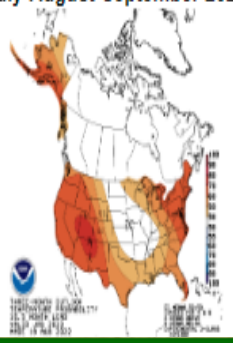
May-June-July 2023



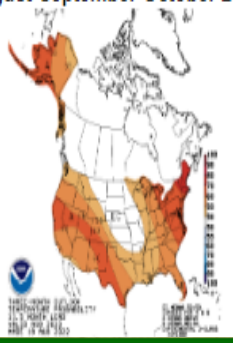
June-July-August 2023



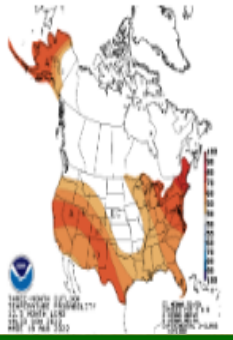
July-August-September 2023



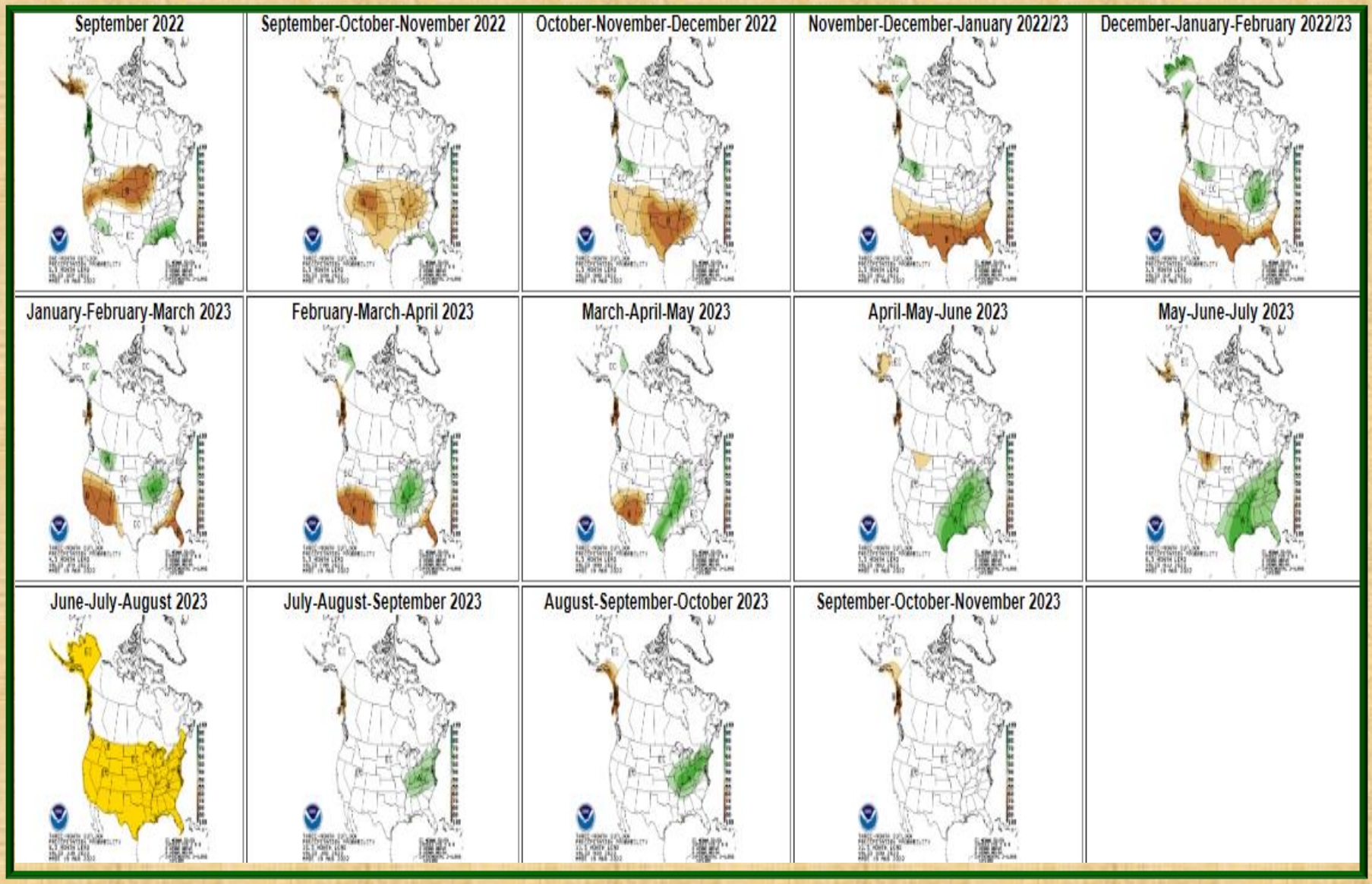
August-September-October 2023



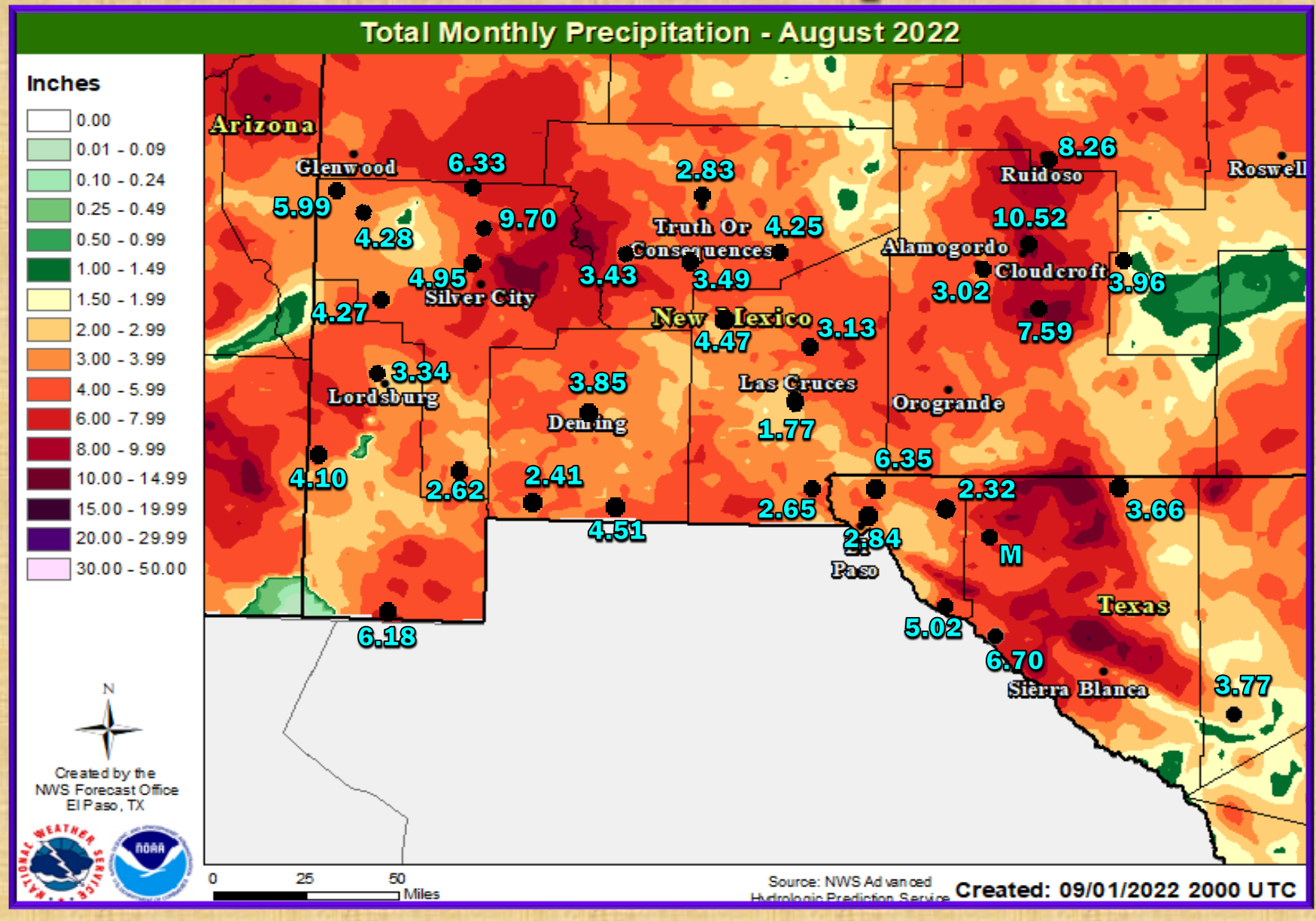
September-October-November 2023



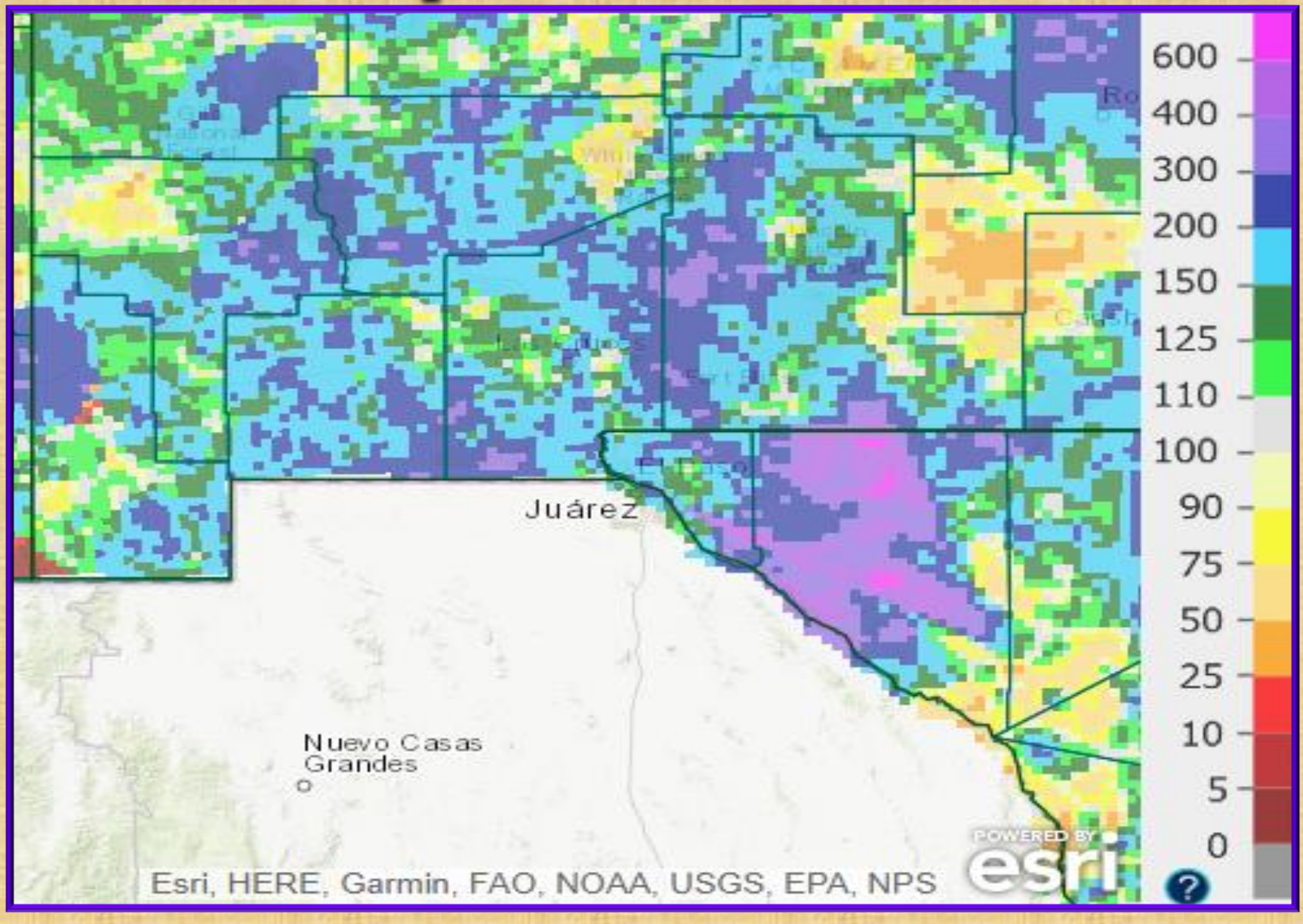
Precipitation Outlook Through November 2023



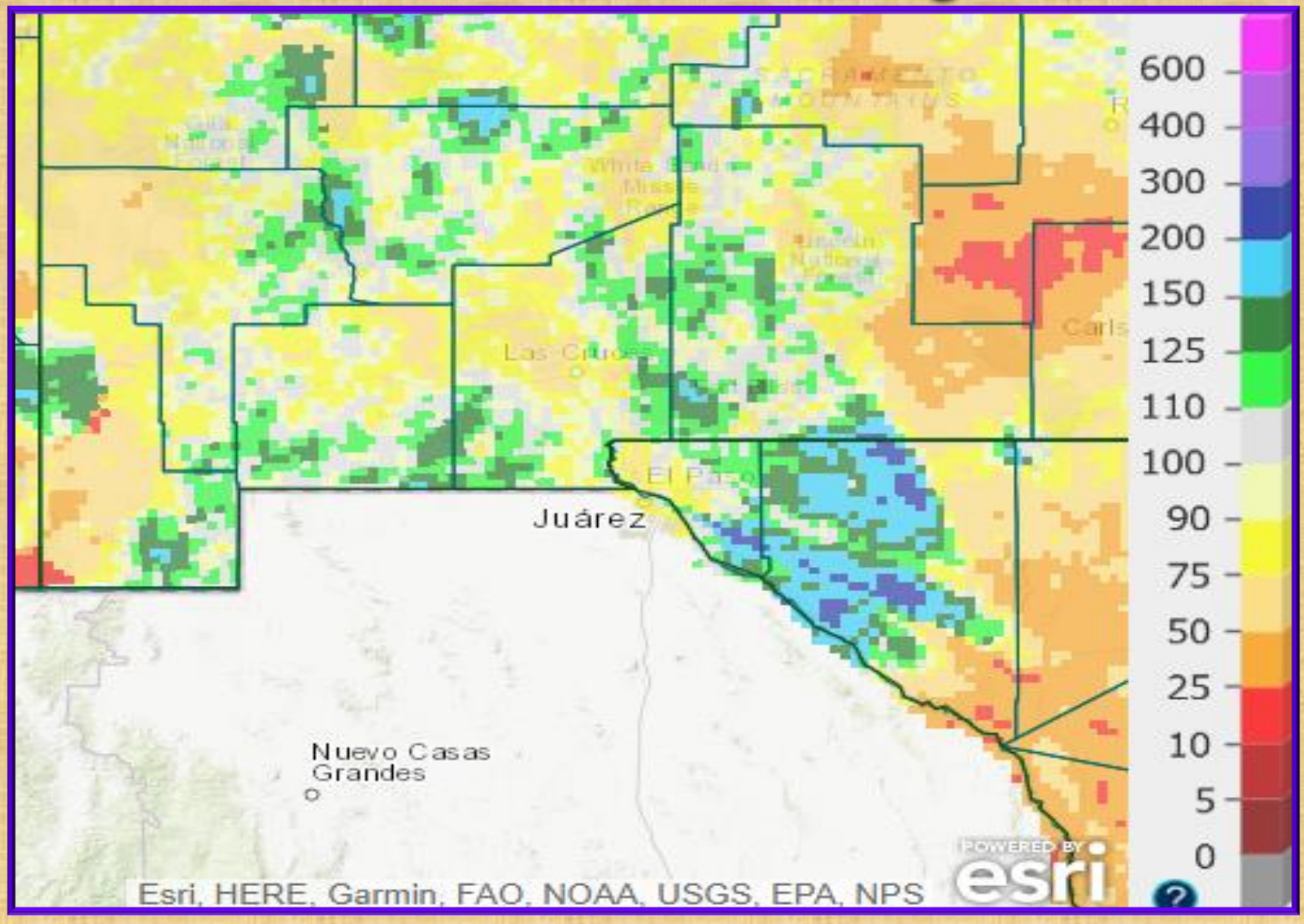
August 2022 radar rainfall estimate with surface rainfall reports



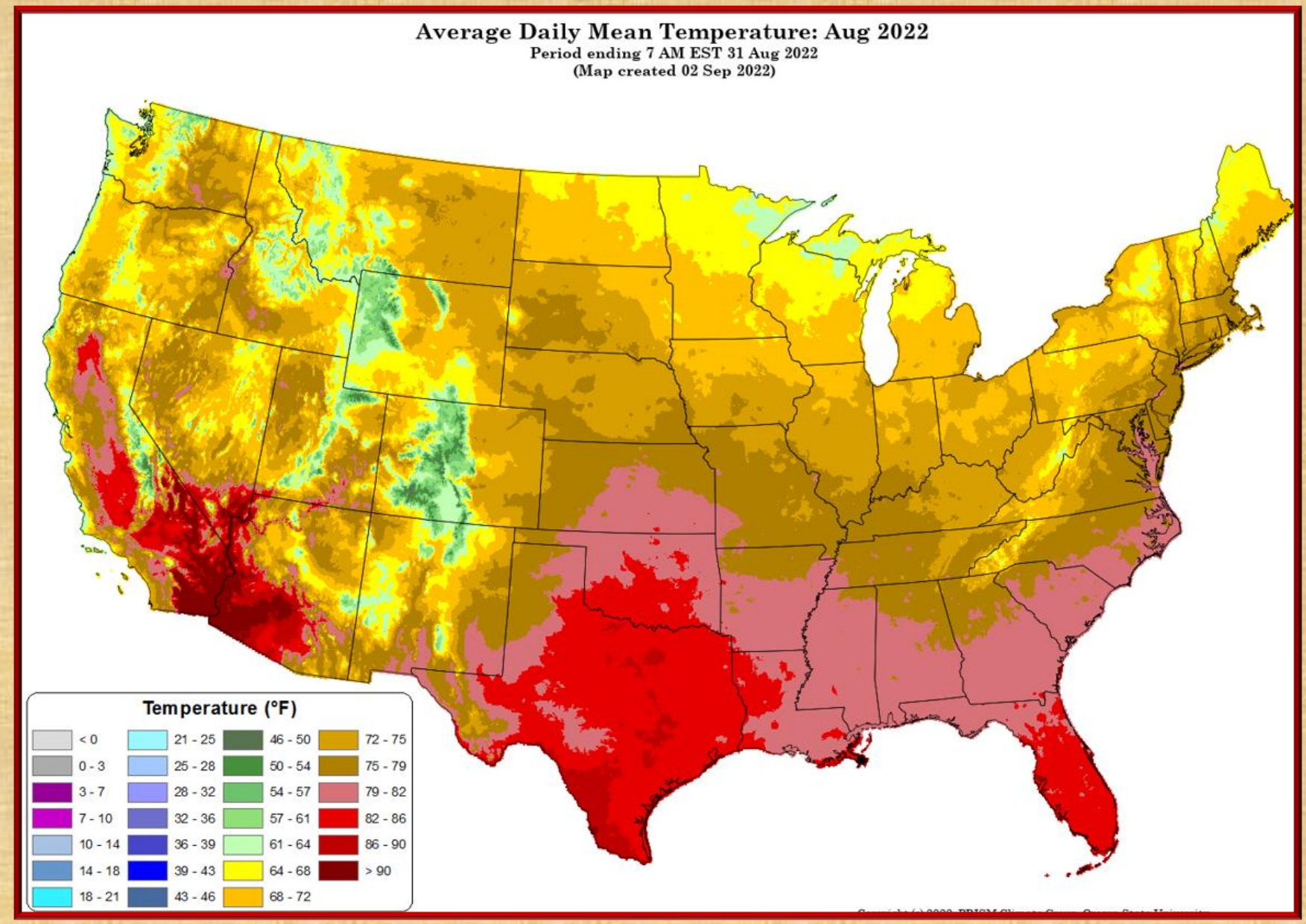
August 2022 rainfall estimate percent of normal



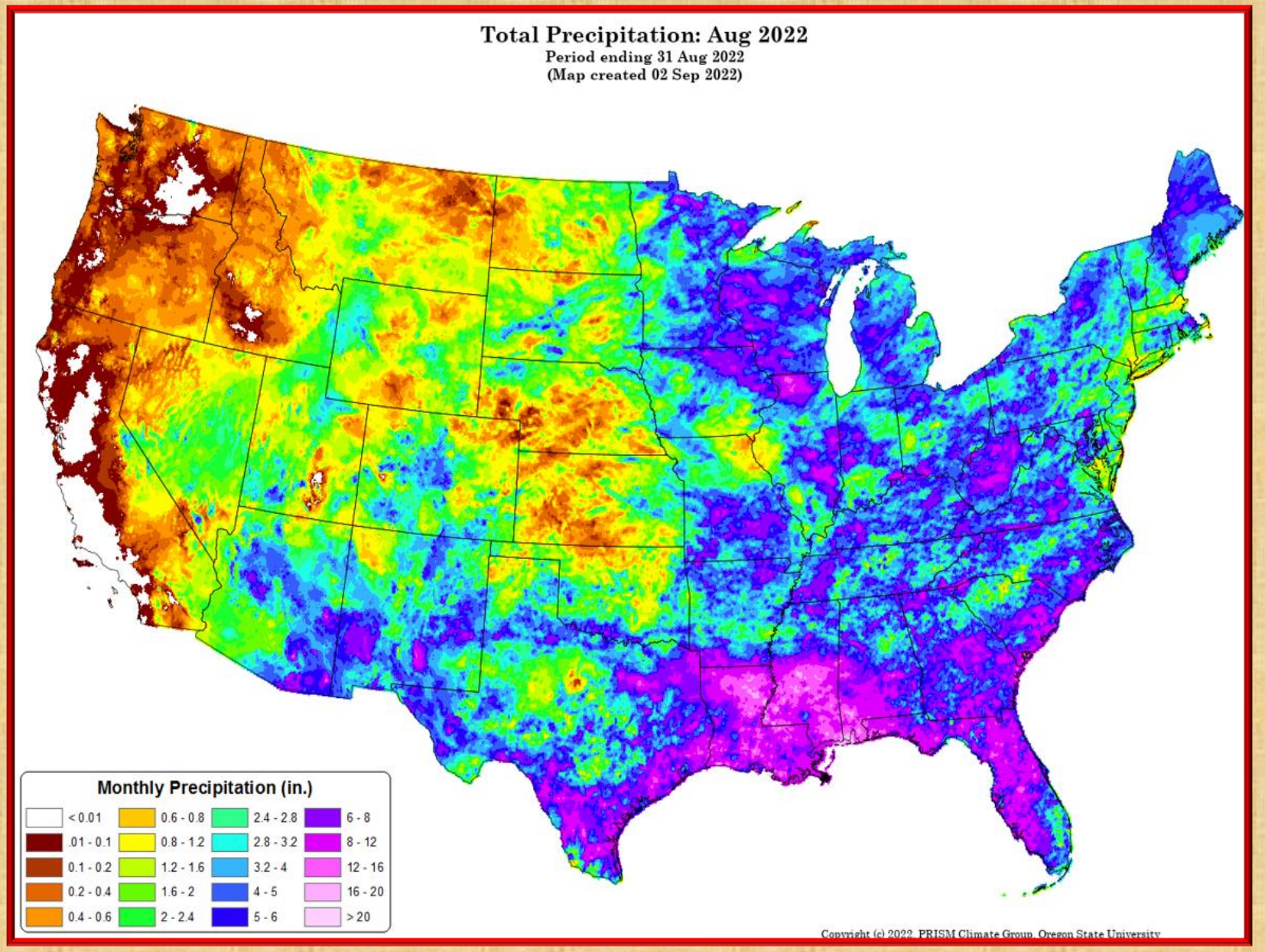
Radar rainfall estimate percent of normal for the Water Year (Oct 1 – Aug 31)



Average Daily Mean Temperature for August 2022

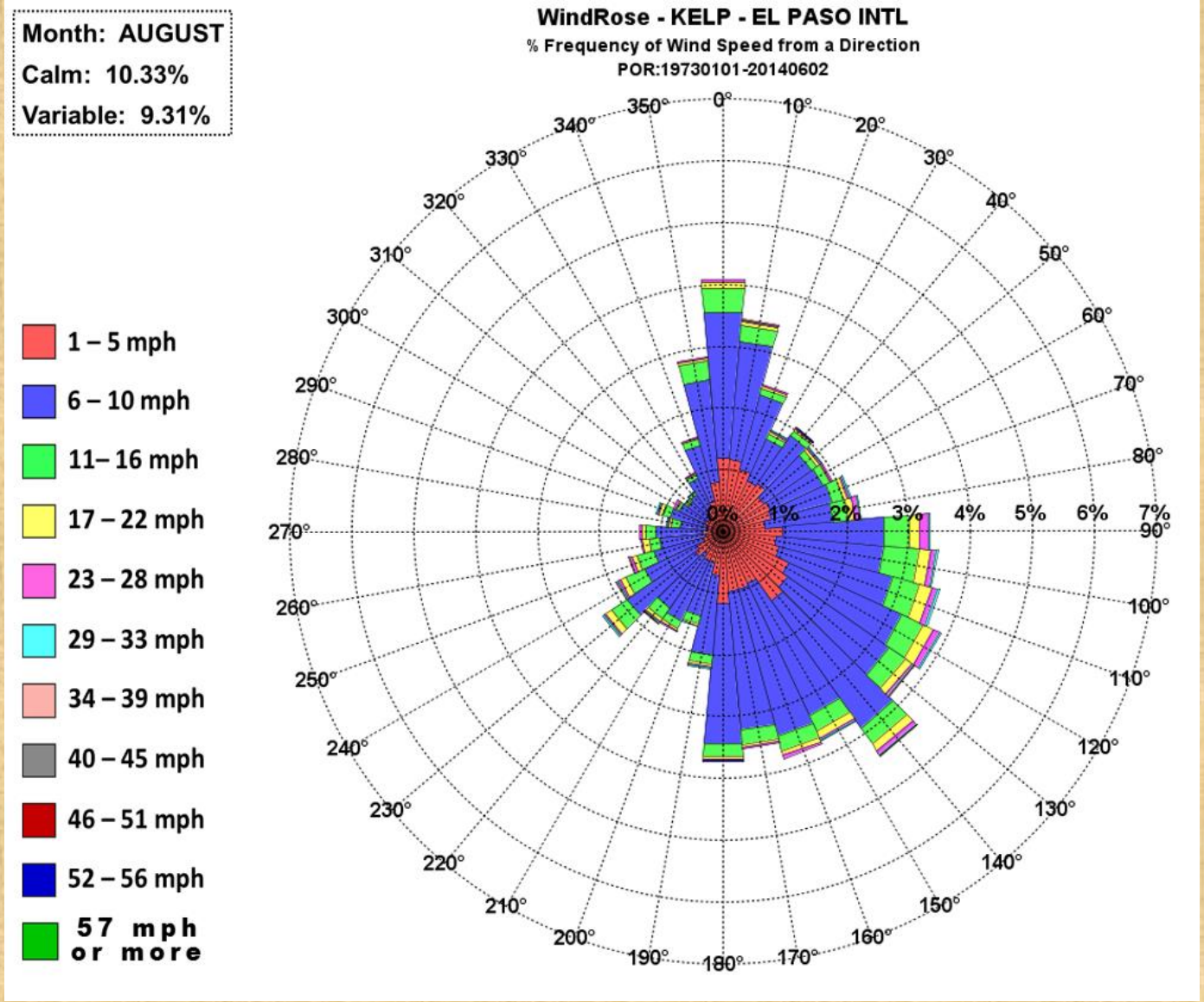


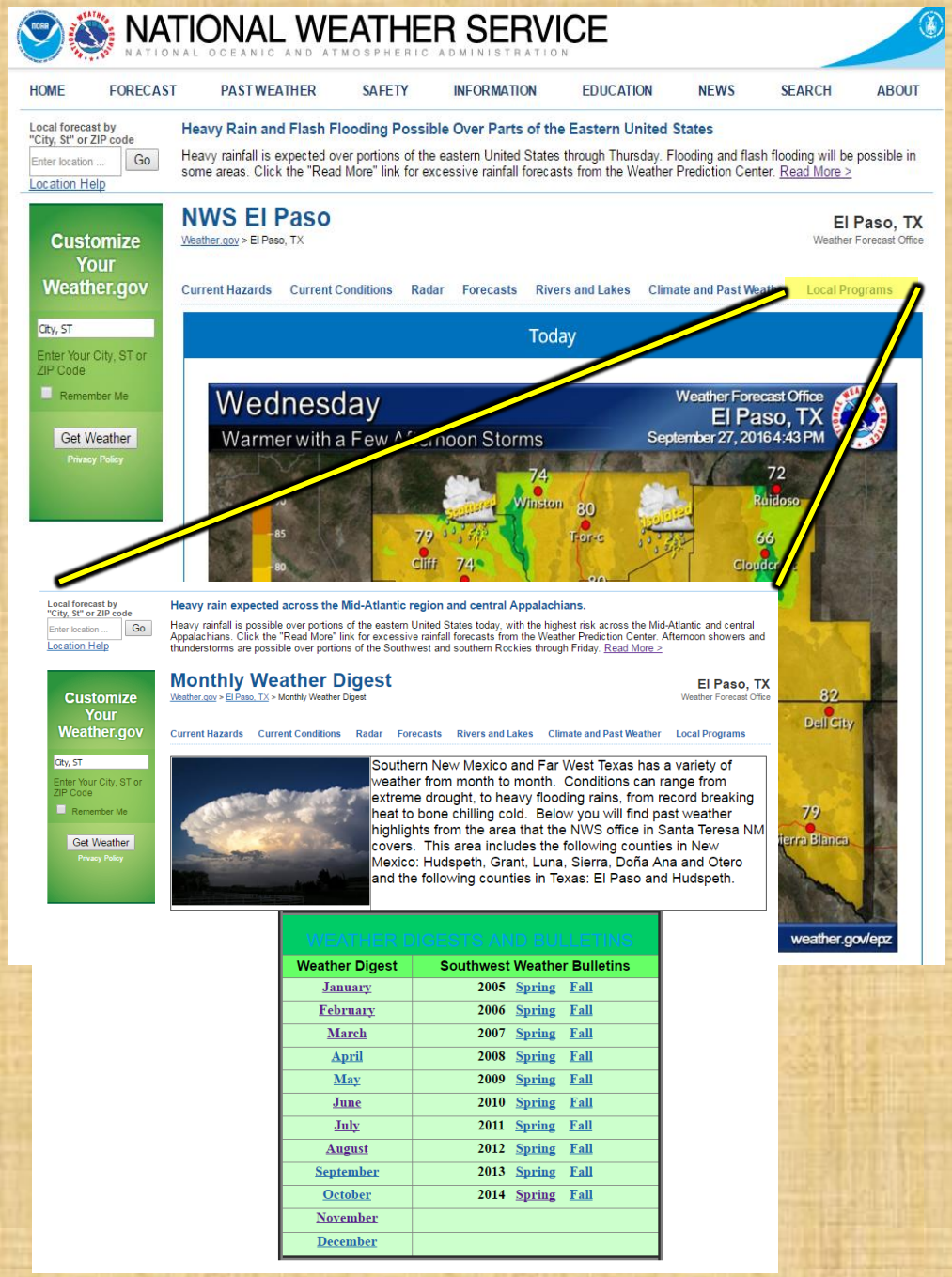
Total Precipitation for August 2022



Special Features

http://www.srh.noaa.gov/epz/?n=elpwindrosedata





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Just click on "Local Programs>Weather Digest", then choose which month's Digest to view. Also, though discontinued, don't forget to check out our back issues of Southwest Weather Bulletin.